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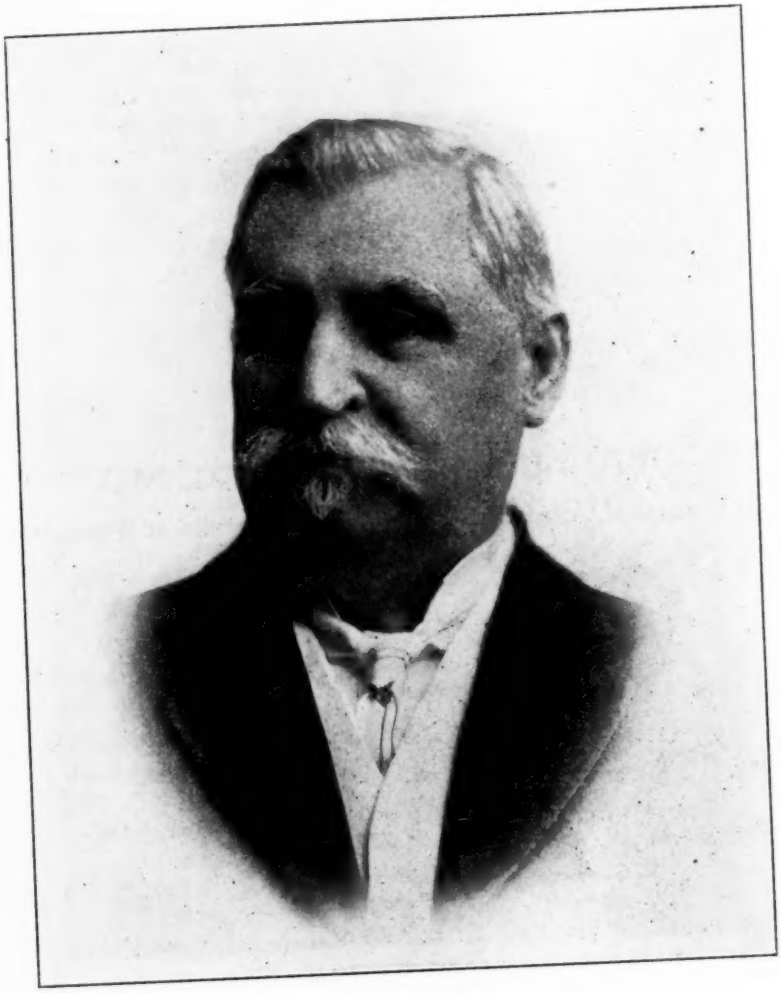
OTTO AUGUSTUS WALL, Ph.G., M.D.

Presiding Chairman of United States Pharmacopœial Convention, at Washington, D. C., May, 1910.



OTTO A. WALL

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V JULY, 1916 NO. 7

OTTO AUGUSTUS WALL.

Professor Otto A. Wall became familiar with the published proceedings of the American Pharmaceutical Association in June, 1864. On that date, he, at the age of eighteen, entered pharmacy as an apprentice under tutorship of Dr. Enno Sander, of St. Louis. His preceptor had joined the Association six years previous, and subsequently served as president and honorary president. Dr. Wall became a member in 1884 and will soon be on the Life Membership List by statute of limitation (thirty-seven years). Dr. Wall has the distinction of being the only one to serve two terms as president of the Missouri Pharmaceutical Association. Dr. Wall was a member of the Committee on Revision of the U.S.P. in 1880–1890 and again in 1890–1900. He was vice-president for 1900–1910 and presided at the convention of May, 1910, with marked parliamentary skill. In 1873, Dr. Wall sold a drug store which he had conducted for a short time.

This interesting figure in American Pharmacy is most widely known as a teacher. He succeeded Dr. Enno Sander as professor of materia medica and botany at the St. Louis College of Pharmacy in 1873, and has continued as a very popular instructor in the same position ever since. He held the corresponding chair in the Missouri Medical College for several years and for a time taught chemistry in that institution.

Professor Wall was on the editorial staff of the National Druggist from 1885 to 1887 and was one of the early writers on microscopy and photo-micrography in pharmaceutical periodicals of this country. As an author, his first book was "The Prescription," which is a classic on the subject. "Wall's Pharmacognosy Notes" is a very practical work and the same may be said of his "Lessons in Latin." Dr. Wall is the editor of the *Bulletin* of the St. Louis College of Pharmacy. He was graduated with honors from the St. Louis College of Pharmacy in 1868, the Missouri Medical College in 1870, and the Bellevue Hospital Medical College in 1871. He practised medicine until 1882. For several years following, he was engaged in pharmaceutical manufacturing on his own account.

With other accomplishments, Dr. Wall is a talented artist with some years of education in art and a life-long love for the same. In early years, he gave much attention to music.

H. M. WHELPLEY.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

PHARMACISTS IN THE UNITED STATES ARMY ARE GIVEN MORE PAY.

CHAIRMAN S. L. HILTON of the Committee on the Status of Pharmacists in the Government Service, in the April number of the JOURNAL, p. 400, explained the proposed changes in the reorganization of the U. S. Army, affecting the pharmacists in such employ. The bill as outlined by Chairman Hilton has now become a law, whereunder the Hospital Corps becomes part of the Medical Department. Two new ranks have been created, namely, Master Hospital Sergeants and Hospital Sergeants. The former receive $75.00 per month with allowances for food and clothing as for Master Engineers, Senior Grade, and the latter $65.00, with allowances for food and clothing as for Master Engineers. The former pass an examination in pharmacy by a board of one or more *medical* officers, and they must have served one year as a Sergeant of First Class. In the proposed army of 175,000 men, the Hospital Corps will have 437 corporals, 1162 sergeants, 612 sergeants first class, 43 hospital sergeants and the same number of master hospital sergeants.

While this is progress, in a way, as it incorporates everything that was asked for in the Hughes-Bacon Bill, the highest grade should have been given commissions, more particularly in view of the increase of the enlisted army and a desire to improve conditions, comparative to those of other nations. It would have been something for them to aspire to by becoming qualified, befitting the dignity of the rank.

The pharmacists in the Government Service can rest assured that the strong desire of the American Pharmaceutical Association is to see men in their department who will reflect credit on the profession and that the organization will do everything possible to better their conditions and standing. It seems that at this time it would have been unwise to insist on further consideration; should the United States be involved in war with Mexico, there will be an abundance of work for the Hospital Corps to do, by which they can demonstrate their usefulness and their right to higher professional recognition. E. G. E.

STATE NARCOTIC LAWS SHOULD COMPLEMENT THE HARRISON ACT.

IN this issue of the JOURNAL will be found an article on the Harrison Act, in which the recent Supreme Court decision is cited and the operations of the law explained by Mr. Ephraim Lederer, whose experience and deep interest in this important legislation gives the contribution added value.

The decision of the Court declared the constitutionality of the law by the words which decided that the conviction of an unregistered person, found with proscribed drugs in his possession, is not in conformity with the intent or powers

of the same law; or perhaps better, any other construction would have brought forward the question of its constitutionality.

The moral purposes for which the legislation was contemplated cannot be as fully carried into effect by this revenue measure as many had expected; while it may be possible, as Mr. Lederer suggests, that Congress can enact legislation providing "an entirely effective check on the great evil which the Harrison Act was designed to cure," still there is no question that states can, if they will, enforce such legislative provision, in fact, it would seem that this is a right and duty of the state.

Under the decision a physician prescribing the restricted drugs, even though the object is chiefly to satisfy the patient's craving for the narcotic, is not committing a punishable offense against the United States, but certainly he is offending the community in which he resides. The state should defend itself against such infraction through its police powers, and utilize the proffered means for investigating violations and of securing information from the registration records that are required under the Harrison Act and open for inspection to its officials.

The wording of the federal enactment clearly indicates that state coöperation was expected and deemed essential for carrying out the moral end, but this was not fully recognized until now. Many opposed contemplated state regulations, believing that these would simply duplicate annoyances without accomplishing any more than could effectively be done under the Harrison Law. Such inaction is now no longer excusable and, as soon as possible, provisions should be made for amending state narcotic measures so that they will apply to violations beyond the reach of the federal law.

Interstate shipments and the dealing in restricted drugs by registered persons are well looked after by the Revenue Department; over other sellers and prescribers the state should have supervision, fully empowered by adequate laws to prosecute offenders. However much it may be regretted that the defect of the Harrison Law has been judicially pointed out, because of the temporary stimulus given to this reprehensible traffic, a relatively greater benefit will accrue if states and municipalities will recognize their duty by taking prompt action in providing the needed legal regulations. While the first thought is for restriction of sales, and punishing those who lend themselves to such schemes, the unfortunate addicts who are not in position to present their claims for public protection and assistance should have consideration. A prison is not the proper place for these unfortunates.

The regulation of sales of narcotic drugs therefore again offers a very important topic for discussion, not only for State Associations, but also for the Section on Education and Legislation of the American Pharmaceutical Association.

In our opinion the Model State Narcotic Law,[1] proposed by the National Association of Retail Druggists and drafted by Messrs. J. H. Beal, Frank H. Freericks and Hugh Craig, requires few if any changes to make it adaptable in all states. The suggestion of the draft indicated a foreknowledge of the defect brought out

[1] Printed in JOURNAL A.PH.A., May, 1915, p. 627. See also comments by Hugh Craig, December, 1915, p. 1428, and H. F. Freericks, March, 1915, p. 397.

in the Harrison Law Decision, and the construction of the model evidences most careful and thoughtful investigation. The associations are indeed fortunate in having this excellent draft, ready for further consideration, if necessary, and adoption. E. G. E.

USE THE METRIC SYSTEM—NOT EQUIVALENTS.

THE daily and general use of the old weights and measures in this country has so familiarized everyone with this system that no effort of mind is necessary for readily expressing the volume and mass implied by the terms of such weights and measures.

There is a general preference for the simplest numerical values—the terms one ounce, one drachm, one grain are being preferred by many to 30 mils, 4 mils, or 65 milligrammes. Likewise usage has created a preference for fractions implying divisions by half, quarter, eighth, rather than fifth and even tenth, or the rendition to decimal values of the fraction.

The commercial application and instruction in the schools perpetuate the use of the old system—experience and early training leave very lasting impressions. It will require an Act of Congress to change these conditions, and as the United States is seeking trade in countries where the metric system is in common use, the present seems to be an opportune time for such action, as commercial advantage is always a potent factor in overcoming trade obstacles. England is experiencing the same difficulty we have, and Xrayser, in *Chemist and Druggist* for May 13, 1916, says: "Not till our purchases are made by metric weights and measures shall we really become so familiar with the system as to introduce it in sales. In view of the future of *our world trade,* the sooner we adopt the system throughout, the better for us." And what is true of England is true of the United States.

However, coming back to the object of this writing, the physician is largely to blame for hindering the more general adoption of the metric system in pharmacy, because he designates doses, weights and measures in the denomination of the old system; a like condition obtains with the formulas of manufacturers for pills, tablets, etc., though in other pharmaceutical products these manufacturers employ the metric system. These are the sequences of long usage, for the metric system is employed exclusively only in a few of the industries of this country, and the Government does not insist on its exclusive use in every one of its departments.

Authors of books, quite naturally, have a desire to give their patrons all the information and every convenience possible; they will continue to use alternative formulas, and in many instances entirely ignore the metric system. The pharmaceutical publications have the same thought in mind when they designate the terms of the old system in publishing general formulas. Most of the writers of pharmaceutical papers, but not all, employ the metric system. It is not to be expected that the editor, without permission, will make the transposition; if he did this with exactness, the figures beyond the decimal point would be extensive. So these are potent factors in preserving the old attachment.

Ever since the graduation of chemical glassware in the metric system, volume

measurements of 10 Cc., 50 Cc., etc., capacity have been adopted for obvious reasons. However, prescription bottles are made to hold volumes of 30, 60, etc., mils, in reality based on one fluidounce, two fluidounces, etc. Likewise in the manufacture of graduated measures the same volume markings are made. Graduated metric measures should have capacities of 25 mils, 50 mils and so on up to 1000 mils; the metric weights should include a 25-gramme counterpoise.

The capacity of prescription bottles has heretofore been based on the fluid ounce, and in adopting the 30-mil measurement, the basis would remain the same, and this should not obtain. Instead of 30 mils, etc., the metric bottles should have a capacity of 25 mils, 50 mils, etc., and less volume, 10 mils. It may be said that the teaspoonful dosage has had somewhat to do with the different sizes of bottles, and that the physician prescribes a certain number of doses that conform to these sizes of containers; that for related adaption one dozen pills, capsules, etc., are prescribed. But this largely follows a custom, and after experience, a calculation for 10 doses will be found even more convenient; manufacturers put up pills in bottles of 100.

It is said that a commercial opportunity strengthens a business proposition, therefore the following. Every druggist will admit that the retail sale-prices require adjustment, but that a direct raising of selling-prices would not meet public favor. The method here suggested would actually constitute an advance in price by affixing the present selling-price of say a fluid ounce to 25 mils, and that of an avoirdupois ounce for 25 grammes. This, of course, is stated under the presumption that higher charges are deemed advisable, and may afford a ready way for such establishment under a new system of weights and measures. When a profit is no longer derivable from a long accustomed selling price, the only reasonable way to do is either to give less for the money or demand more money for that amount; there is no more reason for permanent prices in the drug store than in other lines.

The metric system has large advantages that need no presentation in this brief, but the attempt at aligning this system with the old should be discouraged in every possible way, because the one is not developed from the other. Think in the metric system, weigh and measure the quantities with metric weights and measures, and very soon the senses of seeing, hearing and feeling will do their part, without noticeable effort of the mind. By this is meant, that seeing the written denominations, or hearing them spoken, the volume or weight will at once be associated therewith; just as is the case with those who are now experienced in the old system and who lack the same familiarity with the metric.

The Wholesale Grocers' Association contemplates having the weight, in denominations of both systems, on package goods, attempting thus to familiarize the people with the metric system. This very method, however, is in reality a hindrance to the establishment of the metric system—a habit may perhaps be eliminated by tapering off, but the rational and courageous way is to absolutely quit it, and with sincerity of purpose, stand by the resolve. The idea of the Wholesale Grocers' Association has been tried during the last 50 years, with the

result that only those who really discarded the old and adopted the new (more than a century old, by the way) have made real progress; all of those, including druggists, who pursued the other course are just about as far from general usage as they were when the idea of gradual adoption possessed them.

The metric system is universally employed for scientific purposes, its international commercial use is even more imperative, but as such adoption requires many significant changes, the progress is slow, though in late years decided headway has been made. The universal acceptance will be of great commercial benefit, enabling buyer and seller, without resort to calculation, to know what their exchange is based on.

This progressive age, with every country seeking new territory and new trade, in which they will find competitors of every other nation, will hasten a general adoption of the metric system. Pharmacy, as one of the world's activities, should encourage the movement in every possible way, having the further incentive of accepting a system employed in their scientific work and made the legal standard by the Pharmacopœia and National Formulary, both of which become official September 1, 1916. E. G. E.

THE INFLUENCE OF THE ASSOCIATED ADVERTISING CLUBS OF THE WORLD ON BUSINESS AND THE INDUSTRIES.

LESSONS may be taken by every other association from the Associated Advertising Clubs of the World, which, though instituted only a few years ago, is one of the most important organizations in the United States.

Advertising had in the past no very definite meaning, then it was questionable whether truth or falsehood was conveyed, and the uncertainty weakened the truthful messages and missions. The progress toward truth in advertising had been coming for years, but the full force of such necessity, to the exclusion of untruth, came rather suddenly, and the body of men who associated themselves for making advertising a more potent factor adopted "Truth in Advertising" as their industrial battle-cry with Service as one of their principle forces.

The Food and Drugs Act has been productive of more good than directly traceable to its enforcement, and may have been the light under which the abnormalities of advertising became monstrous. The association began rightly by investigating the work of their members, then of those they served and the means whereby publicity was given, and finally those who controlled the advertising mediums. The work has not been completed, but no one will gainsay that the progress made has been marvellous. Most advertisements are free from falsehoods and the advertisers know pretty well what they are paying their money for when they buy space. The buyer of advertising does not always possess the attributes he expects the paper to manifest, but the advertiser of that type, who asks for special privileges or considerations, is passing away. The readers are not slow to see underneath the surface of such conditions, and as a result the interests of both suffer by losing the respect and confidence of those whom the messages

are destined to reach. This subject was one of the topics of the recent convention in Philadelphia.

The preliminary work of the association was followed by offering their services to present and prospective buyers of advertising. The idea is far-reaching and affects every individual, business and industry. Business failures are largely due to ignorance of the cost to do business.

A number of large manufacturing concerns have for some years conducted a systematic instruction course of this kind, employing a force to write articles for papers and magazines, dealing with overhead expense, details, waste, etc. The only derivable value for them is through general improvement in systems of business conduct, which eventually may produce sales for their products. Now the Federal Trade Commission in coöperation with the Associated Advertising Clubs contemplates sending to every manufacturer and retail merchant in the United States a booklet outlining the correct way of keeping accounts. There is the chain—the successful retailer promotes the success of the wholesaler and manufacturer, and they in turn make business for the advertiser.

President Wilson, in a letter to Edward N. Hurley, Chairman of the Federal Trade Commission, wrote on this subject, as follows:

> Your suggestion that trade associations, associations of retail and wholesale merchants, commercial clubs, boards of trade, manufacturers' associations, credit associations and other similar organizations should be enouraged in every feasible way by the Government seems to me a very wise one. To furnish them with data and comprehensive information in order that they may more easily accomplish the result that they are organized for is a proper and useful government function. These associations, when organized for the purpose of improving conditions in their particular industry, such as unifying cost accounting and bookkeeping methods, standardizing products and processes of manufacture, should meet with the approval of every man interested in the business progress of the country.
>
> It is my hope that, in addition to the other work which the Federal Trade Commission is doing, it will ascertain the facts regarding conditions in our various industries. If it finds that an industry is not healthy, it should, after carefully considering the facts, in coöperation with the parties interested, suggest a practical and helpful remedy. In this way many of our difficult business problems might be solved.

Industrial coöperation requires the interest of the Government in all industries of this country, and while for many years the nearly opposite contention was thought to be the patriotic view, this is happily changing and doubtless the Associated Advertising Clubs must be given a share of credit.

The United States is now, more than ever, seeking new markets for the manufactured products of this country, and in supplying such demand, "Made in the United States" should signify *exactly as represented*.

Truthful measure of words and goods and coöperative service are among the forces that have made the Associated Advertising Club influential for good in the business activities of this country. We should entertain fine principles and formulate their expression into sentences, but that is passing beauty, which for permanent good requires that they be more than written phrases, they should be workable and made to work, activated into the living forces of our lives.

E. G. E.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

OPIUM IN THE PHARMACOPŒIA.*

A REVIEW OF THE RECOGNITION ACCORDED TO OPIUM, ITS PREPARATIONS, ALKALOIDS AND DERIVATIVES IN THE SEVERAL EDITIONS OF THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA.

BY M. I. WILBERT.

From a medical or pharmaceutical point of view few excursions into the realms of the past would offer more in the way of practical or romantic suggestion than would a comprehensive review of the recognition that has been accorded to drugs or their preparations in the official standards for recognized medicines.

The following review of the recognition that has been given to opium, its alkaloids and preparations in the Pharmacopœia of the United States is offered rather as a suggestion of the possibilities than as a complete representation of the history and romance evidenced by even this fragmentary portion of the official materia medica.

At this time it will, of course, not be possible to recapitulate, even briefly, the origin and evolution of the Pharmacopœia itself and it must necessarily suffice to state that taking the Pharmacopœia of 1820 as the origin, the several Philadelphia revisions of that book are generally recognized as its lineal descendants.

Of the 34 titles under which opium with its alkaloids and preparations have appeared in the several editions of the Pharmacopœia, no less than 25 are included in the present edition. Ten of the titles were included in the first edition of the U.S.P. published in 1820 and of this number no less than eight are continued at the present time and are alone worthy of a much more comprehensive review than can be accorded them in a short paper of this type.

The first, in alphabetical rotation, of the official preparations of opium, acetum opii, or vinegar of opium, has been variously known as "black drop," "Lancaster drop," "Quakers' drop" and "Foulke's drop." As originally included in the Pharmacopœia it was a complex preparation of variable composition, depending for its efficiency on the concentration secured by exposure in the fermentation by yeast of a mixture of an aqueous extract of opium with sugar. It appears that the preparation originated with one Edward Runstall, of Bishop Auckland in Durham, about 1720, as a secret remedy. It was long esteemed as being superior to other preparations of opium and on the death of Runstall the formula for making it was published and thus became public property. The formula was subsequently included in several of the British dispensatories and became quite popular in Philadelphia. Because of the uncertainty of its composition efforts were made from time to time to improve it, and Dr. Joseph Hartshorn (1779–1850) induced one of the local pharmacists to prepare for him an acetated tincture of opium which replaced the vinegar of opium in the 1830 Philadelphia edition of the Pharmacopœia of the United States. This preparation, however, was not generally accepted, even in Philadelphia, and Charles Ellis (1800–1874), one of the

* Read before the Historical Section, A. Ph. A., San Francisco meeting.

early presidents of the American Pharmaceutical Association, in 1839 outlined a method for making a vinegar of opium as a substitute for the old time "black drop." This preparation was subsequently introduced into the 1840 Pharmacopœia with the synonym "black drop," practically in the form in which it now appears. The acetated tincture of opium was also retained practically unchanged, to and including the revision of the U.S.P. in 1870.

By far the greater number of the drugs and preparations which appear in the Pharmacopœia of the United States of 1820 were previously recognized in the Edinburgh Pharmacopœia, which, directly or indirectly, was the accepted standard in the greater portion of what was then the United States.

The tincture of opium or laudanum of the first Pharmacopœia of the United States was similar in composition to that of the Edinburgh Pharmacopœia. This preparation is said to have originated with Paracelsus (1493–1541) who was among the first to introduce the use of opium into European countries and who, it is said, owed much of his success in the practice of medicine to the liberal way in which he administered the several preparations of opium used by him.

The one time "Elixir of Paregorick," the present camphorated tincture of opium, is thought to have originated with Le Mort, at one time professor of chemistry at the University at Leyden, early in the eighteenth century. It was introduced into the London Pharmacopœia, in 1721, as "Elixir Asthmaticum."

Wine of opium, still popularly known as Sydenham's laudanum, originated with the father of medicine in England and is even now popular in all European countries despite the fact that in this country and even in England the preparation used and sold as Sydenham's laudanum does not fully reflect the original formula promulgated by Sydenham (1624–1689) himself.

The present official pills of opium are also of English origin and were formerly known as Mathews' or Starkey's pills. They are said to have originated with Starkey and were made and sold by Mathews. At an early period they were introduced into the Edinburgh Pharmacopœia and appear as now a mixture of opium and soap in the first edition of the Pharmacopœia of the United States.

The delay in the introduction of some of the present widely used preparations is rather interesting. Extract of opium, for instance, despite the fact that it was recommended and used at a very early period, was not included in the Pharmacopœia of the United States until 1850, and the deodorized tincture of opium which was recommended by Robiquet (1780–1840) early in the nineteenth century and a formula for which was published by Dr. Robert Hare (1781–1858), Professor of Chemistry in the University of Pennsylvania, in 1827, was not included in the Pharmacopœia of the United States until 1860, despite the fact that practically the same methods were employed in making a number of proprietary preparations of opium that had a very wide sale, notably Battley's liquor opii sedativus and McMunn's elixir of opium, both of which were said to be made according to secret formulas and were subsequently shown to be made in accordance with the method outlined by Hare many years before.

In this connection it may not be generally known to the present day generation of pharmacists that the now official process for making deodorized opium and the tincture of deodorized opium by means of petroleum benzine was first suggested by Albert E. Ebert (1840–1906) in a paper published in the *American Journal of Pharmacy* in 1877 (vol. xxxix, pp. 193–196). The process did not, however, receive official recognition until 1905, when it was included in the U.S.P. VIII.

Morphine was discovered by Friedr. W. Sertürner (1783–1841) early in the nineteenth century, and was described at some length in a paper published by Sertürner in 1816. It was included with the acetate, the sulphates and a solution of the sulphate of morphia in the Pharmacopœia of the United States for 1830, though codeine, which was discovered by Robiquet in 1832, was not included in our Pharmacopœia until more than fifty years later, 1883, in the Pharmacopœia of 1880.

This solution of morphine sulphate, official recognition of which was continued to and including the Pharmacopœia of 1870, was for many years a source of trouble and annoyance. A preparation 16 times the strength of the so-called "United States solution of morphine" was included in the British Pharmacopœias and came to be widely used in this country as "Magendie's solution of morphine." A formula for this British preparation was included in the first edition of the National Formulary with the caution not to confound the two. This caution, however, largely perhaps because of the limited circulation of the first edition of the National Formulary, was not always observed.

One of the distinctly American preparations of the Pharmacopœia and the one containing the least amount of opium has rather an interesting history and one that deserves to be recorded at some length in the future. This preparation, the compound mixture of glycyrrhiza of the U.S.P. VIII, originated with Dr. Benjamin Smith Barton, of Philadelphia (1767–1815), a noted author and botanist, who about 1814 prepared the formula, in the form of a prescription for a cough remedy. This prescription was originally filled at the store of Charles Marshall, Sr., which was subsequently presided over by Elizabeth Marshall, the first woman pharmacist in Philadelphia, a daughter of the elder Charles Marshall. The resulting mixture proved to be so efficient that Dr. Barton ordered its renewal for a number of other patients. To avoid rewriting the prescription at length he gave to the preparation the name "brown mixture," because of its color, and under this name it was long known to the apothecaries of Philadelphia, particularly to the one-time apprentices of Elizabeth Marshall, who, during many decades, were recognized to be the representative, progressive pharmacists of Philadelphia.

Another American preparation, the compound powder of morphine of the U.S.P. VIII, originated with Dr. William Tully (1785–1859) at one time professor of materia medica at Yale and the author of an early American text-book on "Materia Medica or Pharmacology and Therapeutics." The compound powder of morphine or Tully's powder became official in the U.S.P. of 1880 in practically the form in which it appears now, though with the large number of other synonyms, the name Tully's powder is found only in the index of the U.S.P. VIII.

The following brief review of the titles for opium, its preparations and alkaloids, which have appeared in the several editions of the Pharmacopœia of the United States will serve to suggest many additional incidents of pharmaceutic interest. Collectively the list tends to reflect, in rather an impressive manner, the popularity of really efficient preparations and their persistance from decade to decade.

A LIST OF TITLES OF OPIUM, ITS PREPARATION AND ALKALOIDS RECOGNIZED IN THE PHARMACOPŒIA OF THE UNITED STATES FROM 1820 TO 1900.

Opium.—Opium, U.S.P. VIII. The concrete juice of *Papaver somniferum* was included in the primary list of materia medica in the U.S.P. 1820 and continued unchanged to 1850. The alkaloid requirement of at least 7 percent of morphine by the official process was included in 1860. This was increased to 10 percent in 1870, modified to 9 percent for opium

in the moist condition in 1880 and in 1890 made to read not less than 9 percent of crystallized morphine as now.

Opium Deodoratum.—Deodorized Opium, U.S.P. VIII. Opium treated with ether was recognized in 1880 as Opium Denarcotisatum, denarcotized opium, with the requirement that it yield 14 percent of morphine. The title was changed in 1890 and the assay requirement in 1900 was made to read from 12 to 12.5 percent of morphine. The U.S.P. VIII also directs the use of purified petroleum benzine in place of ether.

Opium Granulatum.—Granulated Opium, U.S.P. VIII. The granulated form of opium was included in 1900 with the requirement that it yield from 12 to 12.5 percent of morphine.

Opii Pulvis.—Powdered Opium, U.S.P. VIII. Opium, dried and powdered, was officially recognized in 1880 with the requirement that it contain not less than 12 nor more than 16 percent of morphine. This requirement was changed in 1890 to not less than 13 nor more than 15 percent of crystallized morphine and in the U.S.P. VIII to from 12 to 12.5 percent of morphine.

PREPARATIONS OF OPIUM AND ITS ALKALOIDS.

Acetum Opii.—Vinegar of Opium, U.S.P. VIII. This title appears in the Pharmacopœia of 1820 with the synonym black drop and the directions to ferment an aqueous extract of opium and spices with yeast, after the addition of sugar. This preparation was continued in the 1830 New York edition but omitted from the 1830 Philadelphia edition, which latter contains a formula for acetated tincture of opium. A modified formula for vinegar of opium (2:13) with the synonym black drop was included in the U.S.P. for 1840. The formula was changed in 1880 to 10 percent of powdered opium.

Collyrium Plumbi Acetatis et Opii.—Collyrium of Opium and Acetate of Lead, U.S.P. 1820. This preparation, somewhat similar to the lead and opium wash of the National Formulary, appears but once.

Confectio Opii.—Confection of Opium, U.S.P. 1870. This one time popular confection was made official in 1830 and continued through the several editions of the U.S.P. to 1870.

Emplastrum Opii.—Opium Plaster, U.S.P. VIII. The plaster of opium was made official in 1840. The formula was changed in 1880 to the use of extract of opium as now.

Extractum Opii.—Extract of Opium, U.S.P. VIII. The aqueous extract of opium became official in 1850. An alkaloid requirement of 18 percent of morphine was included in 1890 and changed in 1900 to 20 percent of morphine.

Linimentum Saponis et Opii.—Liniment of Soap and Opium, U.S.P. 1830. This preparation was official in 1820 and continued in the Pharmacopœia of 1830.

Liquor Morphiæ Sulphatis.—Solution of Sulphate of Morphia, U.S.P. 1870. A solution of 1 grain of morphine sulphate in a fluidounce of water was made official in 1830 and continued unchanged up to and including the Pharmacopœia of 1870.

Mistura Glycyrrhizæ Composita.—Compound Mixture of Glycyrrhiza, U.S.P. VIII. The well-known brown mixture became official in 1850. In 1880 the formula was changed to require the pure extract of glycyrrhiza and in 1900 the synonym was omitted from the text but still appears in the index..

Pilulæ Opii.—Pills of Opium, U.S.P. VIII. This mixture of soap and opium appears in the Pharmacopœia of 1820 and has been continued practically unchanged to the present time.

Pulvis Ipecacuanhæ et Opii.—Powder of Ipecac and Opium, U.S.P. VIII. The Latin title of this preparation appears in the Pharmacopœia of 1820 as now, though the English title, for a number of decades, was given as powder of ipecacuanha and opium with the synonym Dover's powder. The diluent used up to and including the Pharmacopœia of 1870 was potassium sulphate. In 1860 the title of the preparation was changed to Pulvis Ipecacuanhæ Compositus, compound powder of ipecacuanha, with the other two titles as synonyms. In 1880, with the use of sugar of milk as a diluent, the title was again changed to Pulvis Ipecacuanhæ et Opii but the English title appears as now, powder of ipecac and opium.

Pulvis Morphinæ Compositus.—Compound Powder of Morphine, U.S.P. VIII. This

preparation appears first in the U.S.P. 1880 with the synonym Tully's powder. In the U.S.P. VIII the synonym was omitted from the text but still appears in the index.

Suppositoria Morphiæ.—Suppositories of Morphia, U.S.P. 1870. Cacao butter suppositories, each containing ½ grain of sulphate of morphia.

Suppositoria Opii.—Suppositories of Opium, U.S.P. 1870. Cacao butter suppositories, each containing 1 grain of opium.

Suppositoria Plumbi et Opii.—Suppositories of Lead and Opium, U.S.P. 1870. Cacao butter suppositories, each containing ½ grain of opium and 3 grains of lead acetate.

Tinctura Ipecacuanhæ et Opii.—Tincture of Ipecac and Opium, U.S.P. VIII. This preparation was included in the Pharmacopœia of 1880 practically as it appears at the present time, a mixture of deodorized tincture of opium and fluid extract of ipecac.

Tinctura Opii.—Tincture of Opium, Laudanum, U.S.P. VIII. This widely used tincture, as it appears in the Pharmacopœia of 1820, represents 1 ounce of opium in 16 fluidounces of the completed preparation. The strength of the preparation was changed from time to time until 1880, when it was practically put on a 10 percent basis, though the morphine requirement in the several revisions since that time has been changed slightly.

Tinctura Opii Acctata.—Acetated Tincture of Opium, U.S.P. 1870. This tincture (1:10) was introduced in the Pharmacopœia of 1830 as a substitute for the then widely used vinegar of opium. It was continued practically unchanged up to and including the Pharmacopœia of 1870.

Tinctura Opii Camphorata.—Camphorated Tinctura of Opium, Paregoric, U.S.P. VIII. This old time mixture was made official in 1820 as Tinctura Camphoræ Opiata, opiated tincture of camphor, "formerly paregoric elixir." The formula, at that time, included among other ingredients extract of glycyrrhiza and clarified honey. The title was changed in 1830 to the present one and the formula in the Pharmacopœia of 1840 omitted the extract of glycyrrhiza. The formula in the Pharmacopœia of 1880 substituted glycerin in place of honey.

Tinctura Opii Deodorati.—Tincture of Deodorized Opium, U.S.P. VIII. This preparation became official in the Pharmacopœia of 1860 as Tinctura Opii Deodorata, deodorized tincture of opium, an aqueous extract deodorized with ether and preserved by the addition of 25 percent of alcohol. The strength of the preparation was the same as tincture of opium, 1:13. With tincture of opium it was changed to 1:10 in the Pharmacopœia of 1880 and the morphine content requirement for the preparation has been similar to that for tincture of opium since that time.

Trochisci Glycyrrhizæ et Opii.—Troches of Glycyrrhiza and Opium, U.S.P. VIII. These troches were first included in the Pharmacopœia of 1820 as Trochisci Glycyrrhizæ cum Opio, troches of liquorice and opium, and were originally flavored with tolu. The Latin title in the Pharmacopœia of 1830 was changed to that in use at the present time and the formula was changed in 1850 by substituting the use of oil of anise for tolu as a flavor. The English title was changed, in 1880, to the form used at the present time.

Trochisci Morphiæ et Ipecacuanhæ.—Troches of Morphia and Ipecacuanha, U.S.P. 1890. These troches were included in the Pharmacopœia of 1870 and the title in 1880 was changed to Trochisci Morphinæ et Ipecacuanhæ, troches of morphine and ipecac.

Vinum Opii.—Wine of Opium, U.S.P. VIII. This wine was included in the Pharmacopœia of 1820 with the statement that it was "called Sydenham's Laudanum." Originally it represented 1 ounce of opium in 8 fluidounces of the completed preparation. The synonym was omitted from the Pharmacopœia of 1820 and the formula in 1880 was changed to 10 percent of powdered opium. In the Pharmacopœia of 1890 it was required to contain from 1.3 to 1.5 percent of morphine, but the present U.S.P. VIII omits these requirements and again includes "Sydenham's Laudanum" as a synonym in the index.

ALKALOIDS OF OPIUM.

Apomorphinæ Hydrochloridum.—Apomorphine Hydrochloride, U.S.P. VIII. This alkaloid was included in the Pharmacopœia of 1880 as Apomorphinæ Hydrochloras, hydrochlorate of apomorphine. The title was changed in the U.S P. VIII to Apomorphinæ Hydrochloridum, Apomorphine Hydrochloride.

Codeina.—Codeine, U.S.P. VIII. This alkaloid of opium was included in the Pharmacopœia of 1880. The official recognition of the product prepared from morphine by methylation was added in the U.S.P. VIII.

Codeinæ Phosphas.—Codeine Phosphate, U.S.P. VIII. The phosphate of the alkaloid codeine appears for the first time in the U.S.P. VIII.

Codeinæ Sulphas.—Codeine Sulphate, U.S.P. VIII. The sulphate of the alkaloid codeine appears for the first time in the U.S.P. VIII.

Morphina.—Morphine, U.S.P. VIII. This alkaloid of opium was included in the Pharmacopœia of 1830 as "Morphia" with directions for making. These directions were included in the several editions of the Pharmacopœia to 1870 but were omitted from the 1880 Pharmacopœia, the title at that time being changed to Morphina, morphine, with a description of the physical and chemical properties of the alkaloid and tests for identity and purity.

Morphinæ Acetas.—Morphine Acetate, U.S.P. VIII. The acetate of the alkaloid morphine was included in the Pharmacopœia of 1830 as Morphiæ Acetas, acetate of morphia, with the directions for making from morphia. The monograph remained practically unchanged up to and including 1870. In the 1880 edition of the U.S.P. the method for making was substituted by a comprehensive description and tests and the title changed to Morphinæ Acetas, morphine acetate.

Morphinæ Hydrochloridum.—Morphine Hydrochloride, U.S.P. VIII. The hydrochloride of the alkaloid morphine became official in 1840 as Morphiæ Murias, muriate of morphia, with directions for making from morphia. The title was changed in 1880 to Morphinæ Hydrochloras, hydrochlorate of morphine, and the formula for making substituted by a comprehensive description with tests. The title, in the present Pharmacopœia, was changed to Morphinæ Hydrochloridum, morphine hydrochloride.

Morphinæ Sulphas.—Morphine Sulphate, U.S.P. VIII. The sulphate of the alkaloid morphine became official in 1830 as Morphiæ Sulphas, sulphate of morphia, with directions for making from morphia. The title was changed in 1880 to Morphinæ Sulphas, sulphate of morphine, and in common with the other salts of morphine the formula was omitted, being substituted by a rather comprehensive description and a number of tests.

AUTOBIOGRAPHIES OF AMERICAN PHARMACISTS.*

BY WILHELM BODEMANN.

To the Historical Section of the American Pharmaceutical Association:

As the name of this Section implies, history of American pharmacy is your chief object.

In my humble opinion a true history of American pharmacy is next to impossible if the leading members of our profession do not file with the properly instituted central headquarters their autobiographies.

The Chicago Veteran Association has undertaken to write the history of Chicago pharmacy, and to that end the members of this Association must file their autobiographies with the historian. On several occasions I have recommended to the American Pharmaceutical Association the establishment of similar Veteran Associations throughout this country. Not until at the Detroit meeting did my suggestion meet with support and there it was acted on favorably. May I ask with what result? The different Branches would form the natural nucleus for such an undertaking, taking it for granted that pharmacists who have been

* Read before the Historical Section, A. Ph. A., San Francisco meeting.

in business as retailer, manufacturer, teacher, proprietary man or jobber long enough to be eligible in a Veteran Association, and are pharmacists at heart—are members of these Branches—if they are not, they ought to be—and perhaps the establishment of Veteran Associations would hold out an attraction for pharmacists to join the American Pharmaceutical Association.

Men in our profession who have made good in some way or other to be entitled to the name of an American pharmacist generally have been engaged in pharmacy long enough to be eligible as veterans—they also have a story to tell—nobody can tell their story as well as they themselves, and mighty certain it is, that most of us can do this job a great deal better before the funeral than after, no matter how impressive said funeral may be. When Abraham pled for mercy he came down in his claims from about 50 to 10 individuals worthy to be saved from the wrath of fire and brimstone. I do not believe in coming down on prices and not on figures, and will not make an exaggerated claim as to figures, but I do firmly believe if the establishment of Veteran Associations, under the auspices of the A.Ph.A. would rake together the autobiographies of only 100 men in the United States who have made a mark in ever so humble a way in pharmacy, the historian of future American pharmacy would have a picnic to launch his Volume of American Pharmacy, that would be epoch making.

What else would be necessary than the full autobiographies of say 100 hustlers in active retail pharmacy, manufacturing, jobbing or teaching pharmacy? "*Nomina odiosa sunt.*" I will not name one, but you all know the names of the men I have in mind. If you could arouse their lethargy to the reverse, to an enthusiastic energy to do their share in making the lot of the future historian a bed of roses, the American Pharmaceutical Association would add another jewel to the Tower of Jewels erected in the name of Pharmacy.

Most of you have read the autobiography of our friend, Winchell Forbes, whipped into a literary delicatesse by our friend Beal. Give us 100 such rare morsels and the perusal of such literature would go a great way to make better pharmacists out of our young men. I therefore most humbly again repeat my recommendation: Roman history tells us of Cato's famous "Cæterum censeo," which he proclaimed at every session of the Senate and on every possible or impossible opportunity till Carthage was destroyed. I may not live long enough to see the day when the A.Ph.A. lethargy to furnish data to the future historian will be destroyed or turned into beneficent belligerent activity, but as long as my hand is able to yield a pen and my pen don't rust or the ink-well dry up, I shall repeat my "*Cæterum censeo*" to establish American Pharmaceutical Association Veterans' Associations. If that is done you need not take up a collection to erect a monument for me; that one victory will be glory enough.

The Chicago Veteran Association furnished me the inspiration—as the Chicago Association is an inspiration—aside from the autobiographies these Veteran Branches would be a source of joy and recreation to our "Great Men."

We in Chicago prohibit in our camp fire the discussion of shop, politics and religion—we nurse the tender plant of friendship among our members—"*Gemüthlichkeit*" is on our banner! Go ye and do likewise.

SECTION ON COMMERCIAL INTERESTS, AMERICAN PHARMACEUTICAL ASSOCIATION

POSSIBILITY OF A NATIONAL LINE OF NON-SECRETS, TO BE PREPARED BY THE INDIVIDUAL, BUT WITH COMMON OWNERSHIP OF COPYRIGHTED LABELS.*

FIRST PAPER.

BY D. N. ROBIN.

The question of a line of non-secrets has been considered by many druggists, and it is a serious matter.

There are now more than thirty-six non-secret lines on the market; there are many thousands of dollars invested in these lines by various manufacturers—it requires considerable capital to place on the market a non-secret line.

Of the many large non-secret lines which we have on the market to-day I will mention the (*A*) line, which is sold in about five thousand drug stores; (*B*) line, sold in about fifteen thousand drug stores; (*C*) line, sold in about seventy-five per-cent of the drug stores; (*D*) line, which may be found in various stores, etc.

The (*A*) line we must all admit is the most popular one; the (*B*) line is of a coöperative membership plan; the (*C*) line is manufactured by a pharmaceutical house.

If a non-secret line were proposed we would have to consider first, a popular coined name, and in this instance it is not a case of "What is in a name?"; here a name means considerable. But suppose we did find a good name, what then—how could we get the public to immediately become acquainted with the new name and the new line? Where would the money come from that would be necessary to start a new non-secret line? Both from a financial and a practical standpoint, a national, non-secret line would not be advisable, for the following reason:

Since we must admit that the druggists who sell the (*A*) line are among the leading successful business men in the profession, then the fifteen thousand members of the (*B*) line come next. These men already have considerable money invested in non-secret lines and depend upon the volume of business for profit both in the store and on the stock in the company. It would hardly be probable that these men, who number more than 20,000, would take kindly, and give their support to a new non-secret line.

If a national non-secret line were advocated by national associations such as the American Pharmaceutical Association or the National Association of Retail Druggists, with the entire profession of pharmacists back of it, why, eventually, the general public would be using such a line exclusively and the druggists would lose considerable money by having a lot of non-secret remedies on their shelves as dead stock, and unfortunately they are encumbered with a number of non-secret and various other remedies on their shelves as dead stock now.

We already have enough national non-secret lines. The druggists are showing their preference for their particular line or lines and pushing it or them as hard as they can.

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* Read before the Section on Commercial Interests. This article and the succeeding one by Theodore D. Wetterstroem were written in response to a query propounded by the Section.

My proposition is this: That instead of considering a national non-secret line, if the American Pharmaceutical Association wishes to actually be of assistance to the retail drug business, it consider a *commission,* to be known as a committee on non-secret and other preparations, prepared by druggists actually engaged in the retail drug business at the time they offer a preparation or preparations to the commission for sale by other druggists; and the preparation or preparations must have copyrighted labels before they can be considered.

Suppose John Doe in Philadelphia has been putting up a preparation under a copyright label. We will say for a number of years his patrons have been using this preparation and have found it satisfactory. John Doe, in order to place it on the market, would first be compelled to create a demand for it in, say Chicago, New York, and elsewhere, which would require considerable money. Not knowing whether the expenditure would justify the receipts, John Doe spends a little money on cartons, labels, etc., and sells a few packages or bottles over his counter, when he probably has as meritorious an article as one that is largely advertised.

Now supposing John Doe were to send a sample of his preparation to the A.Ph.A. Commission and a fee of $5.00; the commission would investigate the preparation and give a report through the JOURNAL of its findings, as is done by the *Journal of the American Medical Association;* only in this case, if the commission upon investigation found that a preparation submitted had no merit, or was imperfect, the person who submitted the article would be briefly notified of the fact. If John Doe's preparation was accepted and the notice should appear officially in the JOURNAL, a further notice could be added, that the same could be purchased of John Doe, whose address is ————, or if John Doe so states to the commission, the preparation may be bought through the jobber.

Without exaggeration I can state that more than three thousand druggists are at the present writing putting up one or more preparations under a copyright label. These run from hair tonic to corn cures, etc. If these three thousand druggists could be interested in the plan as outlined, and each one send in his preparation with the fee of $5.00 for each preparation, the commission would have $15,000 with which to start work on. The American Pharmaceutical Association would not have to invest a cent in the work.

The proposition that the druggists would have to see, would be that they could secure articles of known formula and articles that were passed on by a commission of the Association. That in itself would be a good advertisement to the public, for even now the public imagine when they purchase an article which has on the label, "Guaranteed under the Pure Food and Drug Law," that the government guarantees the article.

And let me add right here very emphatically that any druggist who would mistrust his fellow druggist, by thinking that if he were to submit his formula, some other druggist would steal it and make something similar, if I were on the commission I would immediately vote to have such article turned down. For while there are a very few unscrupulous persons in the drug business, I believe that ninety-nine percent are trustworthy and reliable.

In Conclusion.—If the American Pharmaceutical Association does consider such a commission, after a very short period they will derive considerable benefit therefrom; also the three thousand or more druggists who are at the present time trying to put various articles on the market would be gainers by such commission.

It is about time that we as druggists consider our fellow workers and reciprocate with them in more ways than by boosting an "X. Y. Z." non-secret line, or

other such mercenary coöperation. Why not give the John Doe Company an opportunity to buy larger quantities of bottles, or cans, or labels, etc. He cannot do so now, but if John Doe's preparation was guaranteed by the commission and the other druggists all pushed it, he could buy his materials, containers, etc., in larger quantities, and so, by getting better prices himself, could offer larger discounts.

Then again, if you buy a nostrum from some unknown manufacturer and find that it is worthless, you are the loser; but if you buy John Doe's preparation, the commission has his formula, prices and discounts, and they know where John Doe is.

Don't you think that this theory, if worked out along the lines suggested, would in a few years be the means of eliminating the so-called dead stock found in the average drug store?

SECOND PAPER.*

BY THEODORE D. WETTERSTROEM.

This subject should appeal to every live pharmacist. To my mind, when properly worked out it is the salvation of the retail pharmacist. We have tried in a legal way to control the selling price of patent medicines to make a reasonable profit, and we have tried to restrict the sale of drugs to the registered pharmacist. Each time up we get a slap in the face, but we keep on hoping that experience will teach us how to put our dreams across.

A plan was presented at the last convention of the Ohio State Pharmaceutical Association by the Chairman of the Propaganda Committee which looks good to me.

In justice to the public the formulas selected should contain no narcotic drugs, and in justice to the physician no formulas should be recommended which seek to remove troubles which require special medical skill. The line of preparations should be confined to household remedies, toilet articles, remedies for the ills of the lower animals, and technical purposes. The formulas should be such as will require no added expense in their production, that can readily be made from stock on hand.

I have full faith in the members of our organization in that they will comply with the price and quantity conditions. A detail man having power to examine, correct, or make public in our official organ will have the same effect as any law now covering the sale of drugs.

To create a demand for these preparations the same tactics that were used for promoting the patent medicines can be employed, with the added pride in offering a preparation of our own make. This puts the line beyond any competition.

Many a druggist has had success in putting up a few preparations under his own name and has often wished to extend his efforts to other preparations but the enormous outlay of cash for containers, labels, etc., to start with has checked him. I believe this comes within the province of association work and can be made self-sustaining.

To be able to say that these preparations are made by yourself and from formulas approved by the association will be the big selling point which the grocery and the department store will not have.

* Presented to the Section on Commercial Interests, A. Ph. A., San Francisco meeting.

THE BUSINESS NEEDS OF PHARMACY.*

BY W. H. COUSINS.

Among the illustrious men who have chronicled the history of as noble a calling as man ever followed, but few have touched upon that phase of the business that constitutes the very foundation on which success must be builded. The wizards of scientific research have taken the unlettered youth and led him throughout the mystic aisles and taught him the secrets. Listening, wide-eyed and astonished, he has heard the story and seen the birth of an alkaloid; with trembling hand and brain alert, he has beheld the wonderful transformations of chemistry; with attentive ear and tolerant understanding, he has devoured the wonders of serum therapy. He is tutored in the ethical relations that he must maintain toward his co-worker, the physician, in the field of usefulness. He is sent out into the world with material for a great superstructure, though, with sickening certainty, he must realize that he has no foundation upon which to build.

The commercial needs of pharmacy have been overlooked. Our educators have discussed every requisite of success save one. The young pharmacist comes from the laboratory and lecture room with a knowledge of pharmacy that is superb. Before the State Board, he displays a knowledge of the processes of pharmacy, the accuracy and thoroughness of which are beyond criticism. Yet to the veteran of the tile and spatula, who has been throwing bottles at the wall for a lifetime, he is yet a child, because with all the tutorship of the masters of the mystic art, he has never learned that the grand prize of the high calling is a meal ticket and a room key. He has traced rare chemicals to their sources and made them reveal their identity but has never been enlightened on the subject—"*How to pay the rent.*"

To the gray-haired, practical druggist, the battle-scarred graduate of the school of experience, who has given humanity the "once over" and recorded their numbers on the pages of a retentive memory, the pride of Alma Mater and the wonder of the State Board is a joke. He looks on the young man as a matriculate in pharmacy's finishing school. He sizes him up from every angle, and with figures that do not lie, shows that his real worth to a modern drug store is less than the young man could live on. The education of a pharmacist may start in a noble institution of learning that has to its credit nearly a hundred years of usefulness, but until the curriculum is changed, it must have its finish in a "human suffering parlor" where the dollar is a part of the goal.

The pharmacy schools of the country do not merit all the blame for the existing business needs of pharmacy. A part of this blame may be placed at the doors of the journalists of the craft who have evaded commercial pharmacy with a reticence akin to silence. The editorial pages of our greatest publications are prone to discuss elaborately everything that pertains to pharmacy, excepting that one thing that is so needful, if we are to stay in the game—providing for the girl and the babies and garnering a few shekels for the rainy day. Contributing editors from the ranks send hand-embellished orthographical dreams about how to pack a percolator when really the howling need of the craft is a thesis on how to melt the bearings out of a cash register. The formula page is rife with methods for making everything but a dollar. We seem so fascinated with the work that we forget the wage.

Successful proprietors have come to look on a college graduate as being a man capable of being educated to a degree that he will finally be able to steer a

* Read before the joint session of the Section on Education and Legislation and the Section on Commercial Interests, San Francisco meeting.

store clear of the breakers to success. So far, the colleges have sent us unfinished products and given us the task of teaching them the business of pharmacy.

The writer does not wish to be misunderstood by having any one infer that we do not believe in the highest standards of professional pharmacy. We would not for the world lower the plane of scientific pharmacy one jot or tittle. But since seventy-five percent of the business of a modern drug store comes from in front of the prescription partition, the business needs of pharmacy are at least as important as the scientific or professional needs, though they have never been recognized as such. A knowledge of the business end of pharmacy does not detract from the professional ability of a pharmacist. That a man is able to call the alkaloids by their chemical initials and is versed in the technical processes of pharmacy, should in no way hinder him from being thoroughly conversant with the legitimate dollar-getting methods of modern business. The man who is to come up to the standard of the pharmacy of to-day should be able to make a trial balance and a urine analysis with equal deftness. His inability to do so shows that he is only half equipped. Some of the best pharmacists of this country argue that the business or commercial end of pharmacy cannot be taught successfully in the schools. This we think is an error because not so many years ago many of the proprietors were prejudiced against the college man in favor of the man who got even his technical knowledge of pharmacy in a drug store. We have all seen this theory smashed into smithereens. We know that so far as the scientific side of pharmacy is concerned, the college men of to-day are well-nigh faultless. Our state boards meet men who are wonders of scientific knowledge. If the great teachers are able to graduate men who border on scientific perfection, we know that men may be found who can teach business.

Once the highest priced man on the pay roll of the great factories was the chemist who worked and loved into existence the processes by which the products were made. This is not so to-day. The wizard who sets his own salary, the man who is of greatest importance and who is worth whatever he costs, is not the chemist—he is the man who is doing for the great manufacturing plants what somebody should do for pharmacy. He is the efficiency expert who conserves the company's interests by husbanding its dollars and teaching its employes business.

The needs of pharmacy are not confined to a thorough knowledge of it as a science. That part has been well cared for. A pharmacist who is unable to go further than the preparation and dispensing of medicinal products can play but a small part in what we are pleased to denominate pharmacy to-day. A very small percentage of the drug stores in America can be divided into departments in which the worker is required to do only the work of his department. The ideal pharmacist is the man who can do whatever there is to do. We do not believe that the scientific end has been or can be overdone, but we do believe that scientific achievement has been cheapened because our young pharmacists have not been equipped to meet the business needs of pharmacy. The vocation of a pharmacist is twenty-five percent a profession and seventy-five percent a business. Some of us are loth to admit this, but it is true just the same.

To equip a man for the scientific end of pharmacy alone is very much like teaching a physician anatomy and sending him out into the world as a general practitioner. He cannot succeed. He is not a master of his craft. He is only partially equipped for the work that is demanded of him. A pharmacist should be able to conduct a pharmacy. When he is given a diploma, he is a finished product and should meet every demand of his calling. When a graduate of the engineering department receives the O.K. of the faculty he is ready to dig a tunnel,

construct a sky-scraper or build a railroad. When a student finishes the school of law, he is able to take care of himself and his client in any court in the land. But when James Brown, Ph.G., winner of the honors of the graduating class of nineteen fifteen, is placed in charge of a busy store on Main Street and told to make an inventory and render a sworn statement to Bradstreet, of the exact financial condition of the business, he feels like mailing the sheepskin back to the faculty with a request to please cancel the honors. He is up against the task of admitting his gross inefficiency. He must tell his employer that he cannot do it. He must make a confession that is the most humiliating one that any craftsman ever had to make. He must say "I don't know how." He must acknowledge that the job is too big for him. This is enough to kill progress and crush every bit of punch and fighting spirit out of him. Is it any wonder that the pathway of American Pharmacy is thickly strewn with financial wrecks? Can you marvel at the fact that a large percent of the drug stores of this country are insolvent and do not know it? There are stores that have been operated for years that have never been solvent. There has been no time since their establishment that they could have been sold for enough money to liquidate their debts, yet the proprietor thinks he is getting along fairly well and has never dreamed that he has been broke for years. Some druggists at the end of each year wonder why they have no money to show for a year of hard work, but they do not know how to find out. Our educators and the pharmaceutical press are too prone to stand aloof from simple, commonplace business. Too many of us delight to delve into science and discuss the rare products that mean little or nothing to the druggist. We are servants of the craft, and to say that so far we have served it poorly is putting it mildly. We do not mean by this that it is possible to make a financial success of every man who enters the game. We do not expect the craft to get in the class of the *steel trust*, but we do think that a full-fledged pharmacist should be able to conduct the average drug store without hanging out a distress signal when a business problem comes up for consideration.

Our ideal pharmacist is a man learned in the science of pharmacy, who is able to make a statement showing the profit on the business for July with the same ease with which he shows the percentage of iodine in a specimen of the tincture. The plan of pharmaceutical education in vogue at present makes it necessary to employ two men to do what one should do. After we have employed a graduate pharmacist to conduct a store, many times, we find it necessary to go to a hardware store or a lumber yard and find a man who does not know whether a halogen is for soft corns or is a new name for the banana split, but one who can tell an asset from a liability without taking it to the laboratory. Merging the two men we get an efficiency that we should get from one. This condition grates on the nerves of the man who wants both the professional and business side of his business efficiently managed. The outlook is not bright to the young man who has spent two or three years in a college of pharmacy and on completing his course finds that he must serve an apprenticeship at a nominal salary to learn business. Of course, there are a few places in pharmacy for the young man whose ambition is to spend his life wearing out a hole in the floor in front of the tile and who is satisfied with twenty-five dollars a week for dispensing physicians' prescriptions, but he is a long way from being an antidote for the business needs of pharmacy because the man who is satisfied with his salary would be satisfied with his sales, and the druggist who is satisfied with his sales is finished.

We hope that in the near future the business needs of pharmacy will be recognized and met by a system of business education that will equip the young pharmacist to fill efficiently the position in the world's work for which he seeks to qualify.

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

THE WOMAN IN HER OWN PHARMACY.*

BY DAISY A. FRICK.

The woman in her own Pharmacy has unlimited possibilities to permeate her personality through her establishment.

There is nothing that can quite take the place of the woman in her own home and there is therefore a wonderful opportunity for the woman who does not manage her own home, to put so much of her self into the next best thing, her Pharmacy, for since that is this woman's choice it has now become her shrine.

To my mind, the personality lent from an individual to an establishment is a chief essential to success. There must be an air of good fellowship, an atmosphere of harmony, a service of worth, merchandise of merit, courtesy in abundance and reliability staunch and true; also a dignity about the place that merits respect and confidence and at the same time a freedom sufficient to bespeak a sincere welcome to every incomer, be he purchaser or guest. These are virtues that are as priceless as rubies.

Now, then, for business. I shall take first, for discussion, the prescription business, for that is the primary motive for choosing pharmacy as a profession, a true, noble calling in behalf of humanity for which woman is particularly adapted.

The deftness of a woman's hand, coupled with that steady clearness of eye and brain, untainted by either liquor or tobacco; the resolve to win for herself the goal to which she has aspired; the human heart in her, maternal in its instinct to be ministering unto some needy body and soul; the genuine fineness of her character, equip her with an ability which will make for success, just as surely as the night must follow the day.

There is no such thing as failure to the woman who wills. Her love for human kind, her knowledge gained, her ability sufficiently displayed, her confidence imposed, she, the woman in her own pharmacy, now has herself in her own hand quite as much as in the hand of the public, whose faithful servant she has now become. For after all it is the service we are able to render that makes life really worth while. The hand that knows not service for another knows not the meaning nor the joy of life.

To indulge in the work of a chosen art becomes such a real pleasure that every department lends a new interest and inspires such zeal that the woman in her own pharmacy is not content unless she can have a hand or at least an eye at all of it. It is her pleasure as well as her privilege to work now here, now there, and to shift in turn the clerks employed, to the various tasks at hand.

The prescription department then is the chief realm of glory. The accuracy of the trained pharmacist develops that skill which thrills one with pride as the mortar, pestle and graduate yield the "Elixir of Life" from that mysterious prescription case.

The rubber goods department is one which should be kept in charge by a competent lady clerk or trained nurse, so the woman in her own pharmacy usually

* Read before the Women's Section, A. Ph. A., San Francisco meeting.

has that business well developed and waits upon most of the customers for those needs.

Then, passing on to the stationery department, a woman is a good judge of qualities of paper, styles of papeteries used, and what is suitable for all classes of correspondence, by all ages and sexes. What she lacks in information along this line she makes it a point to find out. One can learn something new every day. To be a good salesman requires thorough knowledge of the goods to be sold.

There is much pleasure in the buying of stocks of various kinds sold in drug stores, in the arrangements and displays, besides the actual selling of the goods. Meeting people, and constantly studying their faces and ways, adds a great deal of interest to the business.

We now arrive at the toilet goods case, where woman alone reigns supreme. Who can dare say that a man can sell boxes of powders and creams, touching upon the shades of marvelously delicate tints so peculiarly adapted to each individual need, wherein lies the mystic magic of charm to make my lady beautiful, as well as the woman in her own pharmacy? Why, she has nearly all the business of her town, for she knows not only the best kinds, and the best purpose of each article, but something of the texture as well as the formulæ of the wonders compounded by her own hands. For these, too, stand on her shelves and in the cases beside the widely advertised kinds and enjoy a widespread sale, as a result of her personal recommendation.

The sundries are well selected and well arranged. The knowledge of composition and the methods of manufacture are part of the mental equipment which enables the woman to tell why her line of sundries are better than others.

Then comes the soda fountain. Cleanliness, quality, and service are three assets that are absolutely essential to the success of this department. And who can better keep their eye on the cupboard of the soda fountain than the woman in her own pharmacy? It takes a woman to see into the corners, to palatably and economically dispose of the bits of jellies and jams, for as such are the fruits of the fountain to her. There is a great opportunity to make the fountain dainty and attractive, which eventually makes for more business.

The last thing a man usually buys on his way out of the store, if he does not happen to come in for that express purpose, is a cigar; so now it's time for my lady pharmacist to step quickly to the cigar case and put out the choicest cigars that appeal to the taste of man. How can she know the brands, the shapes and the shades of the filthy weed she would not touch but which has, mysteriously hidden within itself, that distinctly pleasing aroma? Why, she masters that in the same way that she masters anything else in which she is earnestly interested (even her husband, when she gets one). She studies the tobaccos, the way they are grown, harvested, and finally rolled, twisted, pressed and wrapped into the wonderful results of cigars. Then she learns how to buy them and later how to sell them. Finally, she learns which cigars are her customer's particular brand, shape and shade and wins his favor, smiles and custom by presenting to his choice just what he wants. That is why he likes to trade with the woman in her own pharmacy.

THE SPHERE OF DRUGGISTS' WIVES AS AFFECTING PUBLIC HEALTH.*

BY MRS. J. M. BLADEN.

The need for thorough sanitation, and for more efficient measures for the prevention of disease, in fact the demand for general conservation of health, is apparent to everyone. Just how much we, as members of the American Pharmaceutical Association, may be able to accomplish along this line becomes of special interest to us.

It seems to me that the druggist's wife has by reason of her knowledge of matters pertaining to health, and her position of more or less influence, peculiar advantages for altruistic service in her community. Certain it is that, as between man and his mate, the latter has opportunities vastly superior to his. And I might even say, here in your presence at least, without fear of my sanity being questioned, that under existing conditions, not even the physician himself exerts more influence towards health conservation than may the druggist's wife, or any equally well-informed and wide-awake woman. For be it remembered, that conservation of health comprehends prophylaxis or prevention of disease only, and does not include curative measures, to which the present-day physician is largely confined.

To learn the sphere of the druggist's wife in this regard, therefore, is only to discover the possibilities at hand for the prevention of disease or the conservation of health, which, after all, spells normal economic efficiency, mental and moral efficiency, the sum total of human happiness—the ultimate good of life.

Very much brain energy has been expended, and valuable magazine space contributed, to the discussion of the conservation of our national resources, and yet withal, mention has scarcely been made of the nation's most vital resources, in fact the most valuable asset from a purely economic standpoint, which is the health of the individuals comprising the nation.

The food and drug laws are vital and much discussed subjects, generally recognized as being economic measures designed for conservation of health. The methods adopted for enforcing these laws in the past, however, have been more or less discouraging, as they have not always been in accord with the securing of the best results from a public health point of view, and even in states where the control of laws regulating the nature and purity of drug products is in the hands of the State Board of Health, the tendency has been to discourage rather than encourage adequate and satisfactory control of all medical supplies.

Some indication of the nature and variability of the products sold as medicine may be had from a comparative study of Hygienic Laboratory bulletins embodying in the form of annual compilations a "Digest of Comments of the Pharmacopœia of the United States and of the National Formulary."

The prevention of disease may be, indeed must be, accomplished in a threefold manner: First, by destruction of pathogenic or disease-producing germs; second, by preventing invasion of the human organism by such germs as may escape destruction; and third, by fortifying the body against the lethal action of the germs which, having escaped destruction and evaded the guards, do gain entrance.

Since the germ theory of disease is established beyond cavil, we may pass to the assumption that microörganisms of the vegetable world do invade the human organism, and such as are pathogenic do produce disease therein. That it is

* Read before the Women's Section, A. Ph. A., San Francisco meeting.

possible to destroy innumerable hosts of this vast army of invasion, no one can doubt. Yet many who recognize this fact neglect to observe it in their daily lives with the scrupulous care it merits, and not a few within the range of our influence are still in ignorance of the menace that hovers over them. Upon those of us who do know rests the burden of encouraging the negligent and enlightening the ignorant. The druggist's wife, more than any other, unless it is the doctor's wife, in whom she will usually find a willing comrade, by virtue of her position, must bear the responsibility of inciting to war, relentless, incessant war, against the invaders. At home, in the club, everywhere, let her teach antisepsis, disinfection, sterilization, any and every means of destroying the omnipotent, though to the unaided eye invisible, enemy.

Directly under the woman's influence are the children of to-day, the men and women of to-morrow, and indirectly the unborn generations yet to come.

After all, so numerous are the invading hosts, and so rapidly do they multiply, that to destroy them all is an utter impossibility. While this is no excuse for the cessation of hostilities on our part, and no suggestion is intended, nevertheless it does bring us face to face with the necessity for the second preventative measure.

If we cannot destroy all obnoxious seeds, we can at least do our part towards preventing those which escape destruction from gaining entrance to the soil. They must remain harmless so long as they do not germinate. Having destroyed what you can, see that the balance are not sown. If this is thoroughly done you may be sure that no disease will follow. By cleanliness, by asepsis, by unremitting war on flies, mosquitoes and all germ carriers, much may be accomplished. Avoid contagions, or if called by duty into their presence, sterilize hands and clothing thoroughly, lest you yourself become a germ carrier. The methods are familiar to all of you. Only make them familiar to your less enlightened sisters and much disease will be preventable.

Doubtless your thoughts have outstripped my language and already arrived at the suggestion I must now confront. If it be impossible to destroy all germs, it is no less impossible to dodge all those still surviving. What then? Are we forced to the conclusion that with all our skill, disease is yet and must continue to be a necessary evil? No. There is one more resource—the third and last method of prophylaxis, viz.: the fortification of the body against the action of such of the enemy as do finally gain entrance. By reason of the campaign of education promulgated by Pasteur and Koch, together with many lesser celebrities within the last decade, few there be who have not received some instruction concerning the two methods of health conservation already mentioned, but, strange to relate, the third and by no means the least of the methods has been sadly neglected. Few, even of the elect, appreciate the tremendous importance of the indomitable army of the defence which benign nature has graciously provided and installed within every human organism for its protection against disease. But for this protection no individual could long survive.

Not a single person reaches mature life who has not ingested or inhaled pathogenic germs galore, or otherwise suffered invasion by the enemies of health. Yet not all succumb to disease. It is evident, therefore, that entrance of pathogenic bacteria into the human organism does not necessarily mean that disease always results from such entrance. How shall we account for this? By the presence of the aforementioned army of defence, which is composed of antibodies, phagocytes, and what not blood elements whose very names ought to insure protection, the technical nature of which does not concern us here, but all of which are designed to destroy pathogenic germs or inhibit their development in the system, and thus

protect the body against the invading forces. Here then is war—a world war, not conceived nor declared by man, but waged within him, and for which not even monarchs are at fault.

To abandon the metaphor, the vital resistance of the one is reduced until he succumbs to disease, while in the other, vital resistance is normal and the pathogenic germs are overcome. Lowered vital resistance means susceptibility to disease. Such susceptibility may be hereditary, as in the case of children born of tubercular parents. Like other children they must inhale tubercular bacilli in order to acquire the disease, but unlike the majority of others, their blood is weak in defensive elements and once having inhaled the bacilli they are doomed.

I believe, as yet, they have not been able to prove tuberculosis to be hereditary, but children born of tubercular parents seem to inherit a marked susceptibility for the disease. In many cases, however, susceptibility, which is the opposite of immunity, is not hereditary but readily acquired. Keep the vital resistance up to normal and few disease germs will be able to flourish within the body sufficiently to produce disease.

How can this be done? Largely by the exercise of hygienic measures and common sense. Physical exposure to sudden changes of temperature or long-continued extremes lowers vital resistance. Profound fatigue of body or mind has a similar effect. Intemperance of food or drink, excessive indulgence of any of the appetites or passions, habits of uncleanliness, irregular rest or sleep, all produce marked susceptibility. Worry is one of the most potent factors for the induction of disease, and is so recognized by the medical profession. Any and every thing that tends to reduce mental and bodily vigor contributes towards the success of invading enemies of health and mark one who indulges therein as a traitor to himself and to society.

A knowledge of these facts, even though superficial, once disseminated among the masses would serve to prevent much of the disease and distress now suffered.

Who is better qualified and more worthy of such a mission of mercy and help than the druggist's wife and the members of the American Pharmaceutical Association?

HOW CELLULOID MAY BE MANIPULATED.

I have used celluloid sheet for a variety of purposes where lightness, compactness and transparency were desirable features. Sharp bends may be produced with relative ease by applying a hot iron or other device to the line of the angle. Joints I have and frequently make now with acetone. The two overlapping pieces are held together, acetone is applied from a dropper so as to flow between the surfaces, and these are then pressed firmly together. Adhesion results very quickly so that usually no mechanical holding device is necessary. Irregular bends, especially at junction points, can likewise be made by allowing sufficient acetone to be absorbed by the one part so that it becomes plastic and can be molded into contact with the other part by pressure of the fingers. In this way a dust-proof cover can be produced having also more rigidity when completely dry than the one described in your article.

Collodion sheets obtained by cleaning spoiled negative films are very useful and handy for many purposes, and can easily be manipulated and joined by aid of acetone.—HERMAN S. RIEDERER, Baltimore, Md., in *Scientific American.*

CONTRIBUTED AND SELECTED

A METHOD FOR THE PREPARATION OF LARGE QUANTITIES OF VOLUMETRIC SOLUTIONS.

BY A. H. CLARK, B.SC.

For a number of years I have had to solve the problem of preparing large quantities of normal volumetric solutions of acids and alkali for students' use. The quantities range from five to ten gallons at a time, twenty to forty litres, and the question of how to prepare them in this large quantity and dilute them to exactly normal concentration was puzzling to say the least. Lately the scheme detailed below has been worked out and it seems to answer the purpose admirably.

The scheme consists of first preparing any quantity of a solution (exact volume unknown) of such a concentration that it is from one-tenth to one-fifth above normal, and then determining its factor by titration; second, diluting this solution with an accurately measured volume of water; third, withdrawing from this solution an accurately measured quantity and once more determining a factor; fourth, from the amount of water added at the second step, and from the factors determined at the first and the third steps, calculating the volume of water that is necessary to be added to make the entire lot exactly normal.

The reasoning, together with the necessary mathematics, is given below.

Let V_1 = the original volume.
V_2 = volume of water added at the second step.
V_3 = volume of solution removed to determine the second factor.
V_4 = volume after dilution and second standardization.
V_5 = volume of finished solution when exactly normal.
V_6 = volume of water necessary to be added to V_4 to make the finished solution exactly normal.

The various volumes may be in any unit, but litres or one hundred cubic centimetres will be found the most convenient.

Let W_1 = original weight of active substance per unit volume.
W_2 = weight per unit volume after the first dilution.
W_3 = weight per unit volume of active substance necessary to make an exactly normal solution.
Let F_1 = factor of the original undiluted solution.
F_2 = factor of the solution after the first dilution.
F_3 = factor of an exactly normal solution.

The value which we wish to know above all others is that of V_6, but first of all we must know the value of V_1. Obviously the product of the weight per unit volume into the original volume should be equal to the product of the weight per unit volume after the first dilution into the volume at that time, plus the same

weight per unit volume into the volume withdrawn to make the second standardization. That is:

$$W_1 V_1 = W_2 V_4 + W_2 V_3.$$
$$W_1 V_1 = W_2 (V_4 + V_3).$$

But $V_4 = N_2 + V_1 - V_3.$

$$W_1 V_1 = W_2 (V_1 + V_2 - V_3 + V_3).$$
$$W_1 V_1 = W_2 (V_1 + V_2).$$

Now V_2 may easily be made unity.

Then $W_1 V_1 = W_2 (V_1 + 1).$

Solving this equation for V_1 we have:

FORMULA I.

$$V_1 = \frac{W_2}{W_1 - W_2}$$

The same formula might also be obtained in other ways.

Now, the weight per unit volume of any solution, times the total volume, divided by the weight per unit volume of the active substance contained in a normal solution, will give the volume of the finished solution if diluted to exactly normal. That is:

$$V_5 = \frac{(V_1 + V_2 - V_3) W_2}{W_3}$$

But $V_6 = V_5 - V_4$

And $V_4 = V_1 + V_2 - V_3$

Then $V_6 = \frac{(V_1 + V_2 - V_3) W_2}{W_3} - (V_1 + V_2 - V_3).$

$$V_6 = \frac{(V_1 + V_2 - V_3) W_2 - (V_1 + V_2 - V_3) W_3.}{W_3}$$

Substituting the value of V_1 from Formula I and simplifying:

FORMULA II.

$$V_6 = \frac{\left(\frac{W_2}{W_1 - W_2} + V_2 - V_3\right)(W_2 - W_3)}{W_3}$$

We thus have under control all the values necessary for determining V_6, since W_1 and W_2 may be determined by experiment and W_3 will be known from theory, and V_2 and V_3 may be made anything we please.

Since the weight per unit volume of any solution is directly proportional to the factor of the solution we may substitute for the various weights the various factors determined by experiment. Thus we do away with the necessity of calculating the various weights. Our formula II then becomes:

FORMULA III.

$$V_6 = \frac{\left(\frac{F_2}{F_1 - F_2} + V_2 - V_3\right)(F_2 - F_3}{F_3}$$

Since the factor of an exactly normal solution is unity, F_3 is unity, and our formula III becomes:

FORMULA IV.

$$V_6 = \left(\frac{F_2}{F_1 - F_2} + V_2 - V_3\right)(F_2 - 1).$$

V_2 may be made unity, say one litre, and V_3 may be made one hundred cubic centimetres, or one-tenth unity, and the calculation is quite simple. For large volumes, twenty litres or more, these values for V_2 and V_3 are convenient. If the quantity of solution is less, say four to five litres, the formula may still further be simplified by making both V_2 and V_3 unity, and the unit volume one hundred cubic centimetres. In this way both V_2 and V_3 will cancel out of the formula and we have:

FORMULA V.

$$V_6 = \left(\frac{F_2}{F_1 - F_2}\right)(F_2 - 1).$$

The following examples are given to show what can be done by using these formulas. These figures are the final factors of various lots of normal sulphuric acid made as described and using formula IV to calculate V_6.

(1) 1.006. (2) 0.9967. (3) 0.9968. (4) 0.9983.

In these experiments ordinary 25 Cc. volume pipettes were used to measure the acid solutions, and a cylinder graduated to 1000 Cc. in 10 Cc. divisions for the water used in the dilutions. The results were obtained on lots of about twenty litres.

By using more refined methods of measurements one lot of about twenty litres finished with a factor of 1.0018.

On lots of about four litres and using Formula V to calculate V_6 results were obtained as follows, using volume pipettes for the measurements:

(1) 1.001. (2) 0.9985. (3) 0.9989.

If we consider the fact that a variation of 0.004 in the factor of a solution means a variation of only 0.1 Cc. on a volume of 25 Cc. used in standardization, these results are accurate enough for the control of all ordinary work of students. Indeed, I believe the method could be made sufficiently accurate for most purposes aside from very exacting scientific work.

The advantages of the scheme as compared with the usual method lie in the fact that:

First, any volume of a solution may be prepared in a vessel of any shape or size regardless of whether the vessel is filled or not, by means of two separate titrations, and the measurement of three relatively small volumes. Because of this, standard graduated flasks need not be employed, nor any device for holding the volume of water necessary to dilute to normal the original solution.

Second, the calculations are not cumbersome, even with arithmetic, and are very simple by means of logarithms, and in any event are more conveniently carried out than the dilution to exact volume which is necessary when proceeding in the usual way.

Third, the original concentration may be considerably above normal and may vary widely. It must, however, be far enough above normal so that the first dilution still leaves it above normal. These conditions may be easily attained by rough calculations. In these respects much less latitude is allowed when proceeding in the usual way.

Fourth, the time necessary to complete the whole operation is short. After a little experience from fifteen to thirty minutes is ample.

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY, Chicago, Ill.

THE DETECTION OF MINUTE QUANTITIES OF UNSATURATED HYDROCARBONS IN PETROLATUM OIL.*

BY C. H. BRIGGS AND W. L. IRWIN.

The recent discovery of the value of petrolatum oil as an intestinal lubricant has increased the consumption of this oil enormously. Because of the large doses used in this treatment the purity of the oil is important. It is claimed that unsaturated hydrocarbons are liable to be broken up in the body with the formation of poisonous products, hence, the presence of these compounds in petrolatum oil for internal use should be rigorously guarded against.

It is well known that commercial petrolatum oils before being purified contain considerable proportions of unsaturated hydrocarbons. These unsaturated compounds react readily with concentrated sulphuric acid, and the usual method for determining if an oil has been properly purified is to treat it with concentrated sulphuric acid and note the color formed.

The last British Pharmacopœia requires that when 3 mils of the oil are heated with an equal volume of sulphuric acid in a test-tube, placed in boiling water for ten minutes, and frequently shaken, the acid layer should not be darker than pale brown.

A sulphuric acid test for petrolatum oil is to be included in the U. S. P. IX.[1] The test as usually applied in this country requires that 5 mils of the oil be shaken at frequent intervals, during ten minutes, while warming on a water-bath, with 5 mils of sulphuric acid, in a glass-stoppered cylinder.

It has recently been proposed that a mixture of equal parts of nitric and sulphuric acids be used for this test. This mixed acid test has been given a great deal of publicity during the last year, and it has been claimed that it is a more delicate test for unsaturated hydrocarbons than the sulphuric acid test. The facts of the matter are that the mixed acid test can only be applied to oils containing hydrocarbons of the naphthene series and it must not be used on oils of the methane series.

This mixture of concentrated nitric and sulphuric acids is a very strong nitrating agent, and Zaloziecki and Frasch [2] have shown that it will nitrate hydrocarbons of the methane series which contain side chains, forming nitroparaffins having a yellow color. Now, these hydrocarbons having side chains are completely saturated and are not acted on by concentrated sulphuric acid alone. They are present to a small extent in all oils of the methane series and are perfectly harmless. All the oils produced in the eastern and central parts of the United States are of the methane series, and only those oils produced in California are of the naphthene series. Hence, the mixed acid test should only be used on California oils and is not applicable to oils obtained from other sections of this country.

It occurred to the writers that the application of the bromine test for unsaturated compounds to petrolatum oils for internal use would perhaps be a better and more reliable means of detecting these compounds.

The bromine absorption value has been used by McArthur [3] for determining the amount of unsaturated hydrocarbons in shale and lubricating oils. This method consists in allowing the oil to react with an excess of bromine in carbon

* Presented before Pharmaceutical Section of American Chemical Society, April, 1916.

[1] JOURNAL A. PH. A., vol. iv, 994.

[2] Berichte 35, 390.

[3] J. Soc. Chem. Ind., 1888, 7, 65.

disulphide under certain conditions, and determining the amount of bromine absorbed.

We attempted to apply this method to petrolatum oils for internal use, but the amount of unsaturated hydrocarbons in these oils is so small that traces of bromine absorbed by the carbon disulphide appeared to vitiate the results. It was found, however, that by using carbon tetrachloride in place of the carbon disulphide and making some other modifications to adapt the test to conditions, the bromine test gives reliable results for the detection of unsaturated hydrocarbons in petrolatum oils. Furthermore, the test seems to be quantitative and hence the amount of such unsaturated hydrocarbons can be estimated approximately.

The reagents required for the test are as follows:

1. Purified carbon tetrachloride: Add bromine to commercial carbon tetrachloride until the color remains permanent and allow to stand for three or four hours. Add potassium hydroxide in small pieces and allow to stand with occasional agitation until the carbon tetrachloride gives no test for bromine. Distil off the carbon tetrachloride, leaving a few pieces of the potassium hydroxide in the flask. Test distillate for absence of bromine.

2. $\frac{N}{500}$ bromine solution: Dissolve sufficient bromine in purified carbon tetrachloride to make an $\frac{N}{500}$ bromine solution approximately.

3. $\frac{N}{500}$ sodium thiosulphate solution.

4. Starch and potassium iodide solution for indicator: 5 grammes potassium iodide, 5 mils 2 percent starch solution, and 500 mils of distilled water.

To make the test, take 5 mils of oil in a 50 mil glass-stoppered cylinder, add 5 mils purified carbon tetrachloride and 5 mils of the $\frac{N}{500}$ bromine solution. Shake and allow to stand fifteen minutes in the dark. Now, add about 3 mils of starch-potassium iodide indicator and titrate with $\frac{N}{500}$ thiosulphate solution until the color is completely discharged from both layers of the mixture. It is important to shake vigorously after each addition of the thiosulphate solution.

A blank consisting of 5 mils of the $\frac{N}{500}$ bromine solution and 5 mils of the purified carbon tetrachloride solution is run at the same time. The difference in the amount of $\frac{N}{500}$ thiosulphate solution absorbed by the blank and by the sample is the amount of $\frac{N}{500}$ bromine absorbed by 5 mils of the oil.

It is important that the carbon tetrachloride be free from moisture and that the cylinders be perfectly dry.

In order to test out the leading brands of petrolatum oil on the market, ten samples were obtained from one of the largest drug stores in Detroit. These samples were assayed for unsaturated hydrocarbons by the bromine test as described above, and were tested by the sulphuric acid test, and also by the mixed acid test. These results are incorporated in the following table:

	Mils of $\frac{N}{500}$ bromine solution absorbed.	Relative position in bromine test.	Relative position in H_2SO_4 test.	Relative position in mixed acid test.	Relative position as to taste.
A	.5	1	2 O.K.	2	1
B	.6	2	3 O.K.	3	3
C	.7	3	1 O.K.	1 O.K.	2
D	.8	4	4 O.K.	6	9
E	.8	4	7	5	4
F	.8	4	8	8	8
G	1.2	7	6	7	7
H	2.2	8	5	4	6
I	2.3	9	9	8	5
J	19.0	10	10	10	10

It will be noted that nine samples absorbed from .5 to 2.3 mils of $\frac{N}{500}$ bromine and that sample J absorbed 19 mils of $\frac{N}{500}$ bromine. Sample J was a very poor grade of Russian oil. Six of the samples absorbed less than 1 mil of $\frac{N}{500}$ bromine for 5 mils of the oil and this would appear to be a satisfactory requirement for unsaturated hydrocarbons.

When tested by sulphuric acid test, the ten samples showed a wide variation in color and only four would meet the requirements of this test as usually applied.

The three oils which showed the least amount of unsaturated hydrocarbons by the bromine test were also the three best oils by the sulphuric acid test. There does not, however, appear to be a strict relation between the amount of unsaturated hydrocarbons in the oil and the color which is formed by the sulphuric acid test. This would indicate that there are other substances than unsaturated hydrocarbons that are reacted on by the sulphuric acid.

When tested by the mixed acid test, the samples also showed a wide variation in color and only one sample met the requirements of the test. As was to be expected, this sample was an oil of the naphthene series.

The taste of the different oils was also noted, but there did not seem to be any relation between the unsaturated hydrocarbons and the taste of the oil.

Because of the very small quantity of bromine absorbed by these oils, the writers have attempted to calculate approximately the amount of unsaturated hydrocarbons present. Assuming that the unsaturated hydrocarbons in the petrolatum oils have a composition of $C_{18}H_{36}$, which hydrocarbon would have approximately the correct boiling point, then 1 mil of $\frac{N}{500}$ bromine would be equivalent to ¼ milligramme of the unsaturated hydrocarbon. Five mils of the best petrolatum oils would therefore contain less than ¼ milligramme, or less than 0.005 percent, of unsaturated hydrocarbons.

It is inconceivable that this small quantity of unsaturated hydrocarbons in liquid petrolatum would have any injurious effect when the oil is taken internally.

Great credit is due American chemists and American manufacturers for the degree of perfection they have reached in the purification of American liquid petrolatums.

CHEMICAL LABORATORY, PARKE, DAVIS & CO., Detroit, Mich., April 14, 1916.

ADSORPTION OF PEPSIN FROM AQUEOUS SOLUTION BY ALUMINA.

About 12.4 percent of the total pepsin present in aqueous solution is removed by digestion with alumina. This adsorbed pepsin cannot be recovered by repeated extraction of the alumina, to which it adheres, by means of warm water. The filtrate from the digestion with alumina, when again treated with that substance, fails to part with any more of its pepsin. Pepsin is stated to be partly crystalline. (These results seem to point to the fact that argillaceous filtering media should not be employed for brightening preparations of pepsin.)—M. A. Rakuzin and E. M. Braudo (*J. Russ. Phys. Chem. Soc.; Chem. Abstr.*, 1915, 9, 3071).

INVERSION OF CANE SUGAR IN SYRUPUS.*

(SECOND PAPER.)

BY JOSEPH L. MAYER.

In a paper on this subject read before the New York State Pharmaceutical Association, June, 1915 (JOURNAL A. PH. A., August, 1915, p. 945), I called attention to the fact that *syrupus* made by either cold percolation or heat contained practically no invert sugar, but that after standing, both syrups contained a large amount of reducing sugar; the sample made without heat containing more invert sugar than the other one. The samples were originally made January 28, 1915, and contained the following amounts of invert sugar:

Cold Process Syrup	0.174 percent invert sugar
Hot Process Syrup	0.138 percent invert sugar

The cane sugar from which they were made was tested the same day and contained 0.111 percent invert sugar, thus showing that practically no inversion took place in the manufacture of the samples.

The tabulated results of the tests, which were made bimonthly, showed that the percentage of invert sugar in both samples kept on increasing; the last date reported being June 3, 1916, at which time the cold process syrup contained 6.586 percent and the hot process syrup 5.751 percent.

Since that time I have tested the samples very frequently, the results being as follows:

		Cold process.	Hot process.
July	3, 1915	10.480 percent invert sugar	8.801 percent invert sugar
August	5, 1915	17.750 percent invert sugar	13.800 percent invert sugar
September	23, 1915	27.111 percent invert sugar	19.597 percent invert sugar
October	4, 1915	28.320 percent invert sugar	20.671 percent invert sugar
November	1, 1915	31.034 percent invert sugar	21.492 percent invert sugar
December	6, 1915	32.684 percent invert sugar	23.421 percent invert sugar
June	3, 1916	41.097 percent invert sugar	31.565 percent invert sugar

The method of analysis was that employed in connection with the results reported in the former paper—Munson and Walker's "Uniform Method for Determining Reducing Sugars in General" (U. S. Dept. of Agr., Bur. of Chem., Bull. 107, rev. page 241 and 242).

These remarkable results prove, as those reported last year did, that samples of *syrupus*, while practically free from invert sugar when made, become inverted upon standing; the inversion being greater in the cold process syrup than in that in which heat is employed in the manufacture, and that reporting the presence of commercial glucose as an adulterant of *syrupus* merely on the presence of a large amount of reducing sugar is an unsafe procedure.

I am still at work on the subject and hope in my next paper to present further results of the investigation.

RESEARCH AND ANALYTICAL DEPARTMENT, RIKER LABORATORIES.

* Read before the New York State Pharmaceutical Association, June 22, 1916.

LABORATORY NOTES.*

BY CHARLES E. VANDERKLEED AND GEORGE E. E'WE.

NOTE ON THE ASSAY OF LOBELIA PREPARATIONS.

As the alkaloid lobeline found in lobelia is volatile, it is customary in the assay of this drug to obtain the alkaloid by macerating with a mixture of alcohol, ether, and ammonia water, shaking out an aliquot part with 2 percent sulphuric acid, making the acid extractions alkaline with sodium carbonate and shaking out with chloroform. The chloroform extractions are placed in a tared crystallizing dish containing 30 Cc. of ether saturated with hydrochloric acid gas. The whole mixture is then evaporated on a steam-bath and dried in an air-bath to constant weight. The residue of alkaloidal hydrochloride is then dissolved in water and titrated with decinormal silver nitrate. Difficulties were experienced in attempting to titrate the hydrochloride directly with silver nitrate, using potassium chromate as indicator. It was found, however, that quite concordant results with excellent end points can be obtained by using the Volhard method of titration.

NECESSITY FOR TREATING ALKALOIDAL RESIDUES WITH ETHER BEFORE DRYING TO CONSTANT WEIGHT.

It has long been recognized as desirable to treat all alkaloidal residues obtained by chloroform with ether before attempting to dry to constant weight, owing to the tenacity with which such residues retain chloroform.

A recent illustration of this fact was shown in an attempt to assay tablets of apomorphine hydrochloride $^1/_{10}$ grain. The method employed was to dissolve 30 tablets in 10 Cc. of water, render alkaline with sodium bicarbonate and shake out with chloroform. When the chloroform extractions were evaporated and dried to constant weight at 80° C. an excess of about 17 percent of alkaloidal salt was invariably indicated. An investigation of the purity of the materials used and of the actual quantities used in the manufacture having shown no error, attention was again directed to the assay process with a result that when the alkaloidal residue was treated with ether prior to drying to constant weight at 80° C., a concordant result of 99 percent of the required amount of apomorphine hydrochloride was obtained.

NOTES ON THE ASSAY OF FORMALDEHYDE.

The U.S.P. in the assay of formaldehyde directs to allow the formaldehyde, hydrogen peroxide, and normal alkali to stand for thirty minutes after the foaming has subsided.

This has often been proven to be too short a time for complete oxidation of the formaldehyde to formic acid. A far better plan, and one which we have adopted in this laboratory, is to allow the mixture to stand with frequent shaking until no more gas bubbles are noticed on shaking, which occurs after an hour or two. This longer standing cannot be objected to on the score of any methyl alcohol, which

* Abstracted from the Reports of the H. K. Mulford Company Chemical Society. Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

is usually present, being oxidized to formaldehyde and then to formic acid. In experiments using 0.5 Cc. of methyl alcohol, which is far in excess of that likely to be present, practically no standard alkali was used up even after forty-eight hours. Two lots of commercial formaldehyde solution which were examined recently for methyl alcohol contained 6.9 percent and 9.5 percent respectively.

There is some objection to longer standing, however, when acetanilide is present in the hydrogen peroxide used, because the acetanilide is gradually saponified and uses up some alkali. Several blank experiments in which the standard alkali and hydrogen peroxide contained $^{3}/_{16}$ grain of acetanilide per fluidounce were let stand for an hour and showed no loss of alkali, but after about forty-eight hours 0.4 Cc. normal alkali was used up. This is not a serious objection, as in the time required by the improved method the loss of alkali due to reaction with the acetanilide would be negligible. Furthermore, about 50 Cc. normal alkali is used in the assay and 0.4 Cc. is less than 1 percent of 50 Cc., so that the maximum loss of alkali and consequent gain of formaldehyde would be about 1 percent and fairly within the limits of experimental error common to a conditional method of this character.

If it is desired to completely overcome the slight error introduced by long standing a blank correction can be employed.

THE TIME REQUIRED BY RENNIN FOR COAGULATION OF MILK IS INVERSELY PROPORTIONAL TO THE AMOUNT OF RENNIN EMPLOYED.

In our present method of assay we determine the coagulation power of rennin at a fixed time for coagulation of seven and one-half minutes. It often happens that in a series of determinations on a sample of rennin of unknown strength none of the tests will show coagulation at exactly the expiration of seven and one-half minutes. It is a time consuming operation to repeat experiments until the coagulation is made to take place in exactly seven and one-half minutes. A large number of experiments were run to determine whether or not the coagulation can be calculated to a seven and one-half minute basis by inverse proportion when the actual coagulation time has been found to differ from seven and one-half minutes. As a result of these experiments it has been determined that it is indeed possible from weight of rennin used, weight of milk employed and time required for coagulation, to calculate the coagulating power by inverse proportion to a seven and one-half minute basis with a sufficient degree of accuracy for all practical purposes. As an illustration, Experiment No. 7 on rennin sample No. 8 is quoted as follows:

Time for coagulation.	Coagulating power on seven and one-half minute basis.
5½ minutes	1–12,000
7 minutes	1–13,400
7½ minutes	1–12,500
8½ minutes	1–13,200
9½ minutes	1–14,800
10 minutes	1–12,500

The average of these six different times for coagulation calculates to 1 : 13,000 coagulation power on a seven and one-half minute basis, which result is very close to the 12,500 obtained when the time of coagulation was exactly seven and one-half minutes.

Our regular method for the assay of rennin has been modified by the adoption of the following appended note:

When coagulation does not occur in exactly seven and one-half minutes calculation can be made by inverse proportion to a seven and one-half minute basis. For example, if 2½ Cc. of the prescribed rennin solution coagulates the milk in six minutes instead of seven and one-half minutes, then $6:30{,}000::7\frac{1}{2}:x$ ($x = 37{,}500$). Likewise, if 2½ Cc. of the rennin solution coagulates the milk in eight and one-half minutes instead of seven and one-half, then the proportion becomes $8\frac{1}{2}:30{,}000::7\frac{1}{2}:x$ ($x = 26{,}470$).

The above calculation can be resorted to if the time of coagulation falls anywhere between five minutes and nineteen minutes.

THE DETERMINATION OF POTASSIUM IN COLLOIDAL SILVER PREPARATIONS CONTAINING POTASSIUM.

Some colloidal silver preparations contain potassium as an ingredient of the protective colloid in the preparation. The potassium can be determined as follows: Ignite a weighed sample of the preparation at a just barely red heat until completely charred and no more smoke comes off. Treat the ignited residue with hot nitric acid until the silver is dissolved. Dilute with water, filter, add HCl to the filtrate to precipitate the silver as chloride, allow the AgCl to coagulate, filter, evaporate the filtrate to dryness, ignite very gently, cool. Dissolve in water, filter if necessary, add platinic chloride in excess and evaporate to small bulk but not to dryness. Add about 60 Cc. of 80 percent alcohol, allow to stand several hours, filter off the potassium platinic chloride on a Gooch crucible which has been dried at 130° C. and weighed, and wash with 80 percent alcohol. Dry the Gooch and potassium platinic chloride at 130° C. and weigh. The platinic chloride is shown to be in excess by its presence in the filtrate from the potassium platinic chloride. If the platinic chloride was not in excess, the filtrate must be evaporated until free from alcohol, more platinic chloride added and the treatment with 80 percent alcohol repeated.

$$K_2PtCl_6 \times 0.19398 = K_2O.$$

NOTES ON SOME U.S.P. REQUIREMENTS FOR COLCHICINE.

The U.S.P. requires a melting-point of 142.5° C. A fixed temperature like this is impracticable, as slight decomposition occurs around the melting-point. This has been recognized by the U.S.P. Revision Committee and the U.S.P. IX will state that colchicine melts between 142° and 146° C. The melting-point of colchicine is difficult to observe because the melted colchicine does not form a meniscus in the melting-point tube, as occurs with most compounds, but forms globules or wets the inside of the tube. If the point at which a meniscus is formed is taken as the melting-point, a much higher temperature will be obtained as the melting-point. For instance, a sample of colchicine formed globules at 144° C. but did not form a meniscus in the tube until a temperature of 160° C. was obtained.

Most of the colchicine on the market contains chloroform of crystallization. The present U.S.P. does not recognize this fact and offers no requirements regarding it. The U.S.P. IX will require that colchicine lose not more than 5 percent in the heating test. This will prevent excessive chloroform in colchicine. It is probably not practical to prohibit chloroform entirely, as it is exceedingly difficult to completely drive off the chloroform. A sample of colchicine containing chloroform of crystallization which lost 22 percent of its weight when heated for eight hours at 100° C. still contained enough chloroform to give the phenyl-isocyanide reaction. The phenyl-isocyanide reaction, of course, is exceedingly delicate, but

nevertheless this experiment illustrated the difficulty of getting rid of all the chloroform.

A temperature of 100° C. does not appreciably darken the color of colchicine, so that there is no excuse for excessive quantities of chloroform in this product, as simple heating will drive off the chloroform to a satisfactory degree. Colchicine is hydroscopic and the loss on heating requirements of the U.S.P. IX will also prevent excessive moisture in this product. The present U.S.P. hydrochloric acid-ferric chloride-chloroform identification test is unsatisfactory in respect that it requires the mixture to be heated only to boiling. With this procedure a ruby-red chloroform layer may or may not be obtained. If, however, the boiling is continued for one to two minutes, guarding against excessive evaporation, a good reaction is always obtained. With the many samples of colchicine which we have tested, greenish chloroform layers were almost always obtained if the mixtures were only brought to boiling, while if boiled from one to two minutes ruby-red or sometimes brownish tinted ruby-red chloroform layers were obtained.

"CHEEP GAS" TABLETS.

These tablets are sold on the market in Philadelphia for adding to gasoline fuel, with the claim "More mileage—no carbon. One of these tablets to each gallon of gasoline renders combustion complete, keeps cylinders clean, increases the mileage ⅓ to ½." On examination they were found to be grayish, crystalline, mottled tablets with the odor of naphthalene and citronella. Each tablet weighed 8¼ grains and when ground melted at 79½°–80½° C. and boiled at 217° C. As naphthalene melts at 80° C. and boils at 218° C. the tablets are undoubtedly merely naphthalene scented with oil of citronella.

WILFARTH MODIFICATION OF THE KJELDAHL METHOD APPLIED TO PEPTONIZED BEEF, BEEF EXTRACT, AND BEEF, IRON AND WINE FOR ASSAY FOR PROTEIN.

The method adopted is as follows:

Two to three Gms. of the sample (in the case of beef, iron and wine, the residue from 50 Cc.) is placed in the digestion flask, 1 Gm. metallic mercury is added and 25 Cc. of a solution of 200 Gms. of phosphorus pentoxide in 1000 Cc. of concentrated sulphuric acid. After the liquid becomes colorless transfer the acid to the distillation flask with 200–400 Cc. of water. Precipitate the mercury by addition of 25 Cc. of a solution of 40 Gms. of potassium sulphide in 1000 Cc. of water. The acid is neutralized as usual with saturated sodium hydroxide solution. After the addition of a few Gms. of zinc the ammonia is distilled into seminormal acid and the excess of acid is titrated back.

This method is preferable for the determination of beef, iron and wine, beef extract, and peptonized beef, as the time of digestion is reduced from the six or seven hours required by the Gunning-Kjeldahl method to about one or one and one-half hours by the Wilfarth method.

Some comparative results obtained by the two methods are as follows:

	Gunning-Kjeldahl.	Wilfarth.
Sample peptonized beef	62.54 percent	62.10 percent
Sample beef, iron and wine	1.17 percent	1.16 percent
Sample beef extract	45.17 percent	45.10 percent

THE CHEMICAL EXAMINATION OF PYROLIGNEOUS ACID.

The most important constituents of pyroligneous acid, from a commercial stand-point, are acetic acid, acetone, methyl alcohol and phenols. The acetic acid

can be determined by direct titration with standard potassium hydroxide solution, using a large quantity of phenolphthalein test solution as indicator and diluting the sample largely, to overcome the difficulty of observing the end point occasioned by the darkening of the solution when nearing the neutral point.

Acetone can be determined by forming iodoform and shaking it out with ether. The ether is evaporated rapidly and the iodoform weighed immediately. Rather large samples should be used because of the difficulty of handling iodoform without loss by volatilization. The acetone can also be determined by the following method:

Sample 2 Cc., dilute with 40 Cc. water and add 50 Cc. of a mercury reagent made by dissolving 5 Gms. yellow oxide mercury in a warm mixture of 20 Cc. of concentrated H_2SO_4 and 100 Cc. of water. On standing on a water-bath the acetone is precipitated possibly as $2H_2SO_4$. 3HgO. $CO(CH_3)_2$; however, this precipitate is variable and in all cases a check should be run on a facsimile mixture of approximately the same composition. The precipitate is collected on a tared filter and washed with cold water using suction. The filtrate should be treated with more reagent. The precipitate is then dried at 100–110° C. and weighed. From the weight a factor is calculated. This factor is variable according to the composition of the sample, etc. In one sample the factor was 0.052 and in another sample of different composition it was 0.074. The iodoform and mercury methods check up together fairly well. The methyl alcohol can be determined by the following method:

Seven and five-tenths Cc. are treated with potassium carbonate and iodine until the iodoform is completely precipitated. The mixture is made up to definite volume and a filtered aliquot part is placed in a distilling flask. Some sodium thiosulphate and sodium hydroxide is added and the methyl alcohol distilled off. The specific gravity of the distillate is taken at 15.56 percent and compared with the methyl alcohol tables in Van Nostrand's Chemical Annual, 1909. A facsimile preparation of known methyl alcohol content yielded 96.1 percent of its methyl alcohol by this method.

The phenols can be determined by shaking out 100 Cc. with benzol, after adding 5 Cc. H_2SO_4. The benzol solution of phenols is then shaken with a measured volume of 20 percent NaOH solution in a phenol measuring bulb and the increase in the NaOH layer calculated as phenols, 1 Cc. to the gramme.

NOTE ON OPIUM ASSAY.

The impression is quite prevalent that if in an opium assay the morphine is allowed to stand for crystallization for a longer time than the sixteen hours prescribed by the U. S. Pharmacopœia, the morphine will be less pure and more difficult to filter off and wash. In a series of comparative tests of this point the following data were obtained:

Sample.	Time for crystallization.	Insol. in lime water.	Assay.	Remarks.
Gum opium	16 hours	0.094 Gm.	21.03 percent	Not difficult to filter
	44 hours	0.088 Gm.	20.43 percent	Not difficult to filter
Weak solid extract ..	16 hours	0.106 Gm.	6.36 percent	Not difficult to filter
	66 hours	0.128 Gm.	6.96 percent	Not difficult to filter
U. S. Pharmacopœia	18 hours	None	17.80 percent	Not difficult to filter
Solid extract	59 hours	None	18.07 percent	Not difficult to filter
Fluid concentrated	16 hours	None	3.33 percent	Not difficult to filter
	66 hours	None	3.33 percent	Not difficult to filter

It is apparent, therefore, that morphine allowed to stand more than sixteen hours for crystallization is not necessarily less pure or more difficult to wash on the average than morphine which is allowed to stand only the sixteen hours prescribed.

POTASSIUM ARSENITE.

It has often been pointed out that chemicals which are not official and for which no definite authoritative standards have been provided are liable to vary considerably in composition. This point is well illustrated by the potassium arsenite on the market.

Merck's Index gives the formula $KAsO_2$. H_3AsO_3 for potassium arsenite. Until recently we have in our laboratory accepted this formula as the basis on which the strength of potassium arsenite so-called should be based. Recently, however, an American manufacturer has placed on the market a potassium arsenite for which the formula $KAsO_2$ is claimed. Examinations of several lots of this product have shown it to assay 99.2 percent $KAsO_2$ with 0.21 percent water and a trace of carbonate. The importance of making such products official and thereby holding them to a definite standard, even though not used in enormous quantities, is apparent.

NOTE ON THE MEASUREMENT OF UNDISSOLVED ALBUMEN IN THE ASSAY OF PEPSIN.

In the official pepsin assay one-half hour is prescribed for the settling of the undissolved albumen. That this prescribed time is a minimum and not necessarily a maximum is shown by the following experiment:

Experiment number.	One-half hour.	Fifteen hours (over night).
1	50 Cc.	49 Cc.
2	48 Cc.	47 Cc.
3	40 Cc.	40 Cc.
5	37 Cc.	37 Cc.
7	1 Cc.	2 Cc.
9	1 Cc.	1 Cc.
10	Less than 1	Less than 1
XX	Less than 1	Less than 1
XXI	Less than 1	Less than 1

This is of importance to the analyst, as it shows that it is not necessary that the reading of the undissolved albumen should be made exactly one-half hour after the digestion is made. Standing over night apparently yields identical results and thus in necessary cases it allows a pepsin assay to be run in a working time which is too short to allow the undissolved albumen to settle one-half hour.

SAW PALMETTO COUGH PREPARATIONS.

Saw palmetto owes its virtue chiefly to pectoral and sedative activity and therefore finds a place in the treatment of coughs. The active constituents of saw palmetto are oleoresinous in nature and are represented by the oleoresin or alcoholic extract of the drug. Oleoresin saw palmetto can be dispensed in soluble elastic capsules as such, or in combination with terebene, oil sandalwood, creosote, eucalyptol, olive oil, etc. A cordial could be worked out along the lines of the elixir described below.

An elixir of saw palmetto and terpin hydrate can be prepared as follows: Dissolve terpin hydrate 1.75 Gm. in fluidextract saw palmetto 40 Cc. and alcohol 10 Cc.

Add tincture sweet orange peel 1 Cc., solution saccharin 0.2 Cc., glycerin 40 Cc. and syrup 100 Cc. This elixir contains 8 grains terpin hydrate and 184 grains saw palmetto per fluidounce. This elixir may find its use in supplying the apparent need for a terpin hydrate elixir with sedative properties and without "dope." Saw palmetto oleoresin or alcohol-extractive, which is a clear green oily liquid, could be included as an ingredient of a cod liver emulsion, although the green color might be objectionable. The alcohol-extractive of saw palmetto is apparently soluble enough in glycerin to admit of the preparation of a glycerite either by percolation or maceration or by saturating glycerin with the alcohol-extractive of the drug.

Saw palmetto is probably not adaptable to tablets, lozenges or pastilles, as it is oily and has a large dosage.

A clear simple syrup of saw palmetto can be prepared as follows:

Saw palmetto 15 Gms. (or less), exhaust with alcohol. Recover alcohol. Add 15 Cc. glycerin, warm and stir for a few hours. Add 70 Gms. sugar and then water q.s. 100 Cc., warming a little to dissolve sugar.

A complex syrup can be prepared by incorporating the alcohol-extractive from 15 grains saw palmetto in 1 fluidounce of syrup white pine compound.

WOOL-FAT SUBSTITUTES.

In nearly all the European pharmaceutical papers, especially those of Sweden, Switzerland, and Holland, recipes are published for substances which can be used in the place of wool-fat, which is very scarce in all the countries that were in the habit of obtaining it from Germany. The stocks in Germany itself appear to be exhausted now. The "Pharm. Zeitung" recommends as a wool-fat substitute a mixture of 3 percent of stearinic anilide and 97 percent of vaseline (fetron). It is also proposed to make use of Chinese wood-oil for this purpose. According to a German patent Chinese wood-oil can be converted into a solid fat by heating it to 300° C. for a short time. Three parts of this solid fat dissolved in 7 parts of ordinary liquid Chinese wood-oil by warming and then adding 3 parts of wax gives a product which is said to have exactly the same physical properties as lanoline. Professor P. van der Wielen, in dealing with the matter in the "Pharmaceutisch Weekblad," confesses that there is no really good substitute for wool-fat. Of many combinations that have been tried, he recommends as one of the best substitutes a mixture of 20 parts of white beeswax and 80 parts of fresh linseed oil, which absorbs about 170 parts of water. Other mixtures which answer the purpose fairly well are the folowing: (1) Linseed oil, 20 parts; white vaseline, 20 parts; and spermaceti, 5 parts. This absorbs about 100 percent of water. (2) Yellow beeswax, 10 parts; wool-fat, 25 parts; vaseline, 45 parts; water, 25 parts. (3) Yellow beeswax, 15 parts; yellow vaseline, 60 parts; and water, 25 parts. The Swedish pharmaceutical paper, "Svenk. Farm. Tidskr.," publishes a recipe for "Cenolinum anhydricum," which consists of white vaseline 90 parts, cetyl alcohol 3 to 5 parts, and wool-fat 10 parts. Cenolinum is a mixture of equal parts of cenolinum anhydricum and water. According to Professorl van der Wielen a substitute of the same properties is obtained without the cetyl alcohol. Another recommendation is for a substance called "Cerolanum anhydricum," consisting of yellow beeswax 7 parts, wool-fat 15 parts, and white American vaseline 78 parts. Cerolanum is a mixture of 70 parts of cerolanum anhydricum and 30 parts of water. In the "Schweiz. Apoth. Zeitung" a correspondent prefers a mixture of yellow beeswax 3 parts, solid paraffin 7 parts, and yellow vaseline 90 parts.—*Chemist and Druggist.*

THE HARRISON NARCOTIC ACT.*

BY EPHRAIM LEDERER.

The Harrison Narcotic Law, which became effective March 1, 1915, has now been in process of administration for a period of fifteen months. The results accomplished by the Act are much more weighty than will appear from any record of prosecutions brought by the Internal Revenue Department or from the number of convictions obtained in the United States District Courts.

It is well understood that the Act, whilst intended to be, primarily, a revenue measure, did have a distinct moral purpose, and the Department has endeavored from the outset to bear this fact in mind in the administration of the law.

Under the Internal Revenue system the Commissioner of Internal Revenue is usually empowered to adopt the necessary regulations to carry an act of Congress into effect. This course is determined by the circumstances of the case, because it would be impossible for Congress to foresee all the various questions of administration which would enter into the enforcement of a revenue law. These questions usually develop in the process of enforcement, and the regulations are designed to carry out the letter and spirit of the law in accordance with the intentions of the legislature at the time of the enactment. Under the provisions usually accompanying such statutes, these regulations, when made, have the force and effect of law. This applies to the Harrison Narcotic Act, so that a regulation, once made and issued, by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in conformity with the law, is as binding as the Act itself.

The recent decision of the Supreme Court of the United States, in the case of Jin Fuey Moy, has excited widespread attention because the subject with which it deals relates to one phase of the law in which the public is assumed to have a larger direct interest than in any other aspect. This is mainly due to the fact that the newspaper press has necessarily given more attention to the police features associated with the enforcement of the Act than to the regular and systematic carrying out of its purposes, which goes on from day to day under the supervision of the Internal Revenue Force and with the willing aid and coöperation of the vast majority of persons directly affected by the Act, to wit: physicians, dentists, veterinarians and druggists.

A great deal has been said about the tendency of those engaged in these honorable occupations to violate the law. I am happy to say our experience in this district has shown that there is a general and sincere coöperation on the part of all, with the exception of a comparatively small number, in the enforcement of the law and a fine spirit of compliance with the intent of Congress in passing the Act.

The problem with which the Harrison Narcotic Law undertakes to deal is not principally a so-called "tenderloin" problem. That feature of it necessarily figures most prominently in the newspapers, but the regulative features connected with the Act are aimed at evils which ramify throughout every section of the country, and they are designed to correct conditions resulting from the use of narcotic drugs by people who have never come in contact with the so-called "tenderloin" influence, and are merely victims of habits, very frequently innocently

* The JOURNAL is indebted for this interesting contribution to Mr. Ephraim Lederer, Collector of Internal Revenue of the First District of Pennsylvania.

contracted, and which, through the inherent weakness of human nature, they have not been able to throw off.

The Supreme Court, in the Jin Fuey Moy case, has decided that a mere user does not come within Section 8 of the Act, which reads:

> That it shall be unlawful for any person not registered under the provisions of this Act, and who has not paid the special tax provided for by this Act, to have in his possession or under his control any of the aforesaid drugs; and such possession or control shall be presumptive evidence of a violation of this section, and also of a violation of the provisions of Section 1 of this Act. . . . .

In the decision in question, the Supreme Court says:

> We conclude that "any person not registered" in Section 8 cannot be taken to mean any person in the United States, but must be taken to refer to the class with which the statute undertakes to deal, the persons who are required to register by Section 1. It is true that the exemption of possession of drugs prescribed in good faith by a physician is a powerful argument taken by itself for a broader meaning. But every question of construction is unique, and an argument that would prevail in any one case may be inadequate in another. This exemption stands alongside of one that saves employees of registered persons as do Sections 1 and 4, and nurses under the supervision of a physician, &c., as does Section 4, and is so far vague that it may have had in mind other persons carrying out a doctor's orders rather than the patient's. The general purpose seems to be to apply to possession exemptions similar to those applied to registration. Even if for a moment the scope and intent of the Act were lost sight of, the proviso is not enough to overcome the dominant considerations that prevail in our mind.

The Court in passing on the constitutionality of the Act, which it distinctly affirmed, said:

> A statute must be construed, if fairly possible, so as to avoid not only the conclusion that it is unconstitutional, but also grave doubts upon that score. *United States* v. *Delaware & Hudson Co.*, 213 U. S. 366, 408. If we could know judicially that no opium is produced in the United States the difficulties in this case would be less, but we hardly are warranted in that assumption when the Act itself purports to deal with those who produce it. In Section 1, Congress, at all events, contemplated production in the United States and therefore the Act must be construed on the hypothesis that it takes place. If opium is produced in any of the States obviously the gravest question of power would be raised by an attempt of Congress to make possession of such opium a crime.

If the Supreme Court had found that mere possession of opium, or the other drugs mentioned in the Act, were a crime, it might have decided the Act unconstitutional.

The difficulties in the way have been fully recognized by those in charge of the administration of the law, just as they were by Congress when it passed the Act. Under the constitution the Federal Government has no general police power, but only such powers of that nature as are incident to the execution of the laws properly enacted under the constitution.

For this reason the several States could much more readily deal with offences committed by users of the drugs who are habitual addicts, than the Federal Government under its limited powers, but unfortunately it is extremely difficult to secure proper legislation in quite a number of the States. Under these circumstances legislation enacted by Congress, applying as it does to all sections of the Union, is much more speedily put into effect, if that body can be induced to adopt

the necessary legislation that comes within its constitutional power. In passing the Harrison Act, Congress endeavored to supply a law which was needed by the entire country. Whilst the decision of the Supreme Court has undoubtedly impaired the usefulness of the law, it is quite within the bounds of possibility that Congress may be able to amend it so as to meet the objections of the Supreme Court and at the same time provide an entirely effective check on the great evil which the Harrison Act was designed to cure.

It is extremely difficult to prove an actual sale by illicit dealers who operate on a large scale, but do not sell directly to the addict. The possession of a large quantity of narcotic drugs, far beyond the legitimate requirements of a patient, would appear to be a conclusive presumption in fact, and therefore in law, that the possessor is a dealer.

It will be noted that the action of the Court in this case distinctly affirms the constitutionality of the Act, which was assailed on the ground that it was a police measure in the guise of a revenue measure. That feature of the decision is bound to prove, in the long run, more important than the one which has attracted most public attention.

It has been seriously questioned whether the arrest of a mere user of the narcotic drugs coming under the ban of the Harrison Act, and his imprisonment on the charge of having one of the proscribed drugs in his possession, is the best way of dealing with cases of that particular description.

In an essay on " Drug Addiction " by Drs. Joseph McIver and George E. Price, which contains an analysis of 147 cases in the Philadelphia General Hospital, the statement is made:

> All drug addicts should be placed where they can be detained until it is considered safe by the physician in charge for them to leave. An institution for the treatment of these cases should preferably be located in the country or suburbs and surrounded by ample grounds.

It is self-evident that imprisonment is not the kind of detention that is necessary in the case of mere users, to secure the results desired, and that institutions maintained by the State or Municipality for the purpose of effecting a complete and permanent cure are the only instruments which can meet the situation.

It is equally evident that the benefit which might be derived from such institutions can only be secured by the enactment of proper laws by the State, since the Federal Government has no jurisdiction, under the constitution, in matters of that kind. So far as the administration of the law in its general aspects is concerned, it can be said that a large number of physicians have conveyed to the Department the assurance that the Act has had the effect of making most physicians much more careful in prescribing habit-forming drugs as ingredients of the prescriptions which they give to their patients. The conclusions of Drs. McIver and Price in the article mentioned, as to the general effect of these drugs, are as follows:

> While the medical profession has had much to do with the formation of the morphine habit, and in former years with the development of the cocaine habit, it has little or nothing to do with the remarkable development and spread of the cocaine, and especially the heroine habit of the last few years. Farr has drawn a similar conclusion.
>
> Degeneracy, as shown by actual signs of development arrest, is present in a large proportion of cases of drug addiction. The majority of narcotic drug habitues are not also addicted to the excessive use of alcohol.
>
> Heroine is not as deleterious in its effects as morphine, and can be much more readily withdrawn.

I think it can fairly be said as a result of my observation of the administration of the Act in this district that the greater care exercised by physicians and druggists, as required by the terms of the Act, has been a distinct public benefit, and this, without regard to other benefits which have resulted from the enforcement of the law, would justify its enactment.

During the first registration period under the law, ending June 30, 1915, the total number of persons registered in the First District of Pennsylvania was 7489, whilst the registrations in the four districts which are located in the State of Pennsylvania was 17,771. This number was exceeded only by one State—New York—which had a total registration of 20,036. The registrations in the First District of Pennsylvania for the current year have been somewhat larger.

The enactment of the law is fully justified and the slight amount of trouble and inconvenience caused by its administration should be cheerfully undergone, for the sake of the general welfare, by those to whom the Act applies.

HOW TO USE THE METRIC SYSTEM.*

BY J. W. ENGLAND.

It sounds trite and commonplace to say it, but the way to use the metric system of weights and measures is to *think in terms of the metric system.* Nothing can be more confusing than to use equivalents of the older system of weights and measures, and nothing has done more to handicap the introduction of the metric system than such use. The only right procedure is to *think* in metric units. And when this is done, the system becomes surprisingly simple in operation.

The metric system has come and come to stay in this country and in time it will be the only system used; probably in a much shorter time than many of us realize. The metric system was legalized by Congress in 1866. Its weights are used in our coinage. Metric units are the legal units of electrical measure in the United States. The use of the metric system is obligatory in the medical work of the U. S. Navy and War Departments and U. S. Public Health Service, and in Porto Rico and the Philippine Islands; and it is in universal use by analytical chemists and scientists generally.

The European War is demoralizing the export trade of foreign countries. The system of weights and measures most largely used in such trade is the metric. To-day is America's golden opportunity, commercially. Never before in the history of the world has any country ever had such commercial possibilities as this country has for foreign trade. The Government is fully alive to the situation and is doing everything it can to induce manufacturers to use the metric system in the shipment of goods to foreign countries.

Recently, there has been issued an exceedingly practical Senate Document (No. 241), entitled "Report on the Use of the Metric System in Export Trade," by S. W. Stratton, Director of the Bureau of Standards, Washington, D. C. If the metric system becomes the accepted system of U. S. manufacturers for export trade, it will be but a short time until it will be used for goods that are not to be exported, because manufacturers will not want to use two standards—one for export and another for home trade.

The forthcoming editions of our official legal standards—the U.S.P. IX and

* Read before the annual meeting of the Pennsylvania Pharmaceutical Association, June 22, 1916.

the N.F. IV, both of which will become official as of September 1, 1916—will use *only* the metric system of weights and measures. The U.S.P. VIII uses the metric system only. The N.F. III uses the metric system, but gives *relative* equivalents in the apothecaries system, as do, also, many books of reference and text-books. The use of relative equivalents has led to errors by those who assumed that the equivalents given were proportional and interchangeable with the metric units, and they were not. This procedure has undoubtedly retarded the adoption or even the learning of the metric system by pharmacists in a practical manner, and the Committee on National Formulary has very wisely decided to eliminate this feature in the forthcoming edition of the book.

It would certainly seem that the time has come for the pharmacists of this country to decide to use the metric system in the manufacture of pharmaceutical preparations. There is nothing inherently difficult about this. But there is a right way of doing it and a wrong way. The wrong way is to use equivalents of the older weights and measures, and the right way is to use the metric weights and measures, and it is along this line that the following suggestions are offered:

In the first place, while the use of equivalents is to be unreservedly condemned, it is essential that the users of the metric system shall have an intelligent conception of the *approximate* equivalents of metric weights and measures in apothecaries weights and measures so that they shall clearly understand relative values; however, this is very different from using the equivalents themselves.

The following table will serve for the purpose of comparison:

APPROXIMATE WEIGHTS.	APPROXIMATE VOLUMES.
1 milligramme = 1/65 grain.	1 millilitre or mil (or Cc.) = 15 minims.
1 centigramme = 1/6 grain.	1 litre = 2.1 pints or 34 fluidounces.
1 decigramme = 1½ grains.	
1 gramme = 15 grains.	

The term mil will be used in the U. S. P. IX in place of the Cc. or cubic centimetre of the U. S. P. VIII, the Bureau of Standards of Washington, D. C., having found that there was an error in the original measurement of the Cc. The error is practically negligible,[1] but the Committee on Revision wished to be as exact as is humanly possible, and also wished to follow the example of the British Pharmacopœia in the use of the term. Hence, the adoption of the newer and more euphonious term—mil.

APPROXIMATE LENGTHS.

1 millimetre = 1/25 inch.
1 centimetre = 4/10 inch.
1 decimetre = 4 inches.
1 metre = 40 inches.

The figures given are not exact equivalents, but they are sufficiently exact for understanding relative values. The exact metric equivalents carried out to the ultimate decimal point can be found in Part II of U. S. P. IX.

[1] According to the Bureau of Standards, U. S. Government (Circular 47, Bureau of Standards, Department of Commerce, page 12), the term "cubic centimetre" as used in chemical work is a misnomer, since the unit actually used is the "millilitre," which has a slightly larger volume. The difference is the 27 millionth (0.000027) of a Cc.

An excellent conception of the relative values of metric weights and volumes in comparison with the apothecaries weights and volumes may be had by studying the doses given in the U. S. P. IX and N. F. IV.

DOMESTIC VOLUMES.

4 mils = 1 teaspoonful.
8 mils = 1 dessertspoonful.
15 mils = 1 tablespoonful.

It is useful to remember, also, that, practically, there are 28 (28.3495) grammes in 1 avoirdupois ounce, and 30 (29.573) mils in 1 fluidounce.

In using the metric system for manufacturing the preparations of the U. S. P. IX and N. F. IV, the terms used should be few in number and simply expressed. The metric system is a decimal system and its terms should be expressed in whole numbers and decimals, as is done by the official standards.

Thus: 1.5 Gm. is expressed as one and five-tenths grammes, not as one gramme and five decigrammes; or 2.5 mils are two and five-tenths mils.

In analytical chemical work and in the expression of dosage, the same rule is followed in writing, but in speaking, where the quantities are less than one gramme, it is usual to express them in milligrammes, and if less than one mil, in tenths of a mil.

The growth of the metric system in this country, so far as pharmaceutical manufacturing is concerned, has been handicapped by reason of the fact that drugs are bought and sold by the older systems of weights and measures, and to use the metric system results in the production of unusual volumes. Thus, 1000 mils equals 33.8 fluidounces or practically 34 fluidounces. The quantity of a fluid preparation usually made in a drug store is 32 fluidounces or less, and bottles holding this quantity are used for stock. But this difficulty can be readily bridged by using only 95 percent of the quantities of the official formulas and making 950 mils (32⅛ fluidounces) instead of 1000 mils; or better still, by using *metric* round bottom packer bottles, which can be readily obtained of glassware manufacturers in the following sizes: 60, 125, 250, 500 and 1000 mils or Cc.; these cost no more than bottles of corresponding volumes in the older system.

Pharmacists should use metric weights and measures for the making of pharmaceutical preparations whether physicians use the metric system in the writing of prescriptions or not.

The responsibility for the use or non-use of the metric system in the writing of prescriptions rests entirely with the medical profession, not with the pharmaceutical.

In this country, drug stores generally use two sets of weights, *i.e.*, one the apothecaries set for prescription purposes, of grains, scruples, drachms and ounces, and another or avoirdupois set of ounces, pounds, etc., for general use. For the measurement of volumes, there are generally used graduated glass measures of various sizes—60 minims and 120 minims, and 1, 2, 4, 8 and 16 and 32 fluidounces, with pints, quarts and gallon measures of metal.

Every drug store should have a set of metric weights from 1 centigramme to 50 grammes for prescription use, and, if they do manufacturing, a set from 1 gramme to 500 grammes, or, better, 1 kilo to 5 kilos. For volumetric work they should have metric graduated glass measures of 30 mils, 60 mils, 120 mils, 250 mils, 500 mils, and 1000 mils; and a few glass pipettes such as 1, 5, 10 and 25 mils; in fact, these latter are indispensable in applying the official tests. The 10 mil pipette and smaller should be graduated into one-tenth mils.

If graduated glass measures and pipettes in mils cannot be obtained, those

graduated in cubic centimetres can be used in their places, as the difference between the cubic centimetre and the mil or millilitre is practically negligible.

Horace Greeley once said that the way for the Government to resume specie payment was to resume, and, similarly, the way for the pharmacists of this country to use the metric system is to use it.

The U. S. Pharmacopœial Convention and the American Pharmaceutical Association have kept step with advanced scientific progress by recognizing the superiority of the metric system over the older system—the former for the Pharmacopœia and the latter for the National Formulary, and I know that I voice the desire of these bodies when I express the earnest wish that the pharmacists of this country will, with the advent of the new edition of these works, use the metric system in the making of the official preparations and not depend upon the makeshift of equivalents.

The metric system of weights and measures is rapidly becoming the world's universal standard. Its use is now obligatory in 34 countries and optional in 11 countries, and the United States of America cannot afford to take second place to any country.

At the opening of the present session of Congress, Representative Charles H. Dillon, of South Dakota, introduced a bill making the metric system permissive until July, 1920, after which time it is to be compulsory and exclusive. Ordinarily such a bill would be fated for the pigeon-hole, but this bill is being aggressively supported by Secretary of Commerce Redfield, who is himself a manufacturer of large experience in export trade and a firm believer in the metric system. Hence, the prospects for the adoption of the bill in the near future seem bright.

As Judson C. Welliver writes (*Munsey*, April, 1916): "It is now becoming apparent for the first time that the change (to the metric system) cannot long be postponed, and that it is going to be highly beneficial to business and science, and to technical and popular interests. It is probable that Great Britain will not be far behind us in adopting the French (metric) units. British manufacturers have had to use French measurements in many new operations since the war has drawn the two countries closer together than ever before, and even English conservatism will not stand out forever against a good system that is also a universal system."

KAOLIN AND FULLERS' EARTH.

Hess (*Journ. Am. Med. Assoc.*) has investigated the therapeutic difference between kaolin and fullers' earth, which he finds to be considerable when used in the intestinal disorders of infants. These two substances are considered to be the same in the dispensatories but they are by no means alike he says, either in their composition or physiologic action. It is difficult to get a standard analysis of fullers' earth, but he gives what may be regarded fairly typical of the two substances. The main distinction is that kaolin has a far greater amount of hydrous aluminum silicate and fullers' earth considerably more calcium. One of the most notable characteristics of the two substances is their power to adsorb various alkaloids. This adsorptive property can be tested by determining the quantity of earth required to remove from solution a given amount of dye. Direct clinical observation and experience, however, are needed to determine their therapeutic value.

SOME EXPERIENCES IN PREPARING EMULSION OF SILVER IODIDE.*

BY JOSIAH C. PEACOCK AND BERTHA L. DeG. PEACOCK.

The so-called emulsion of silver iodide is a suspension of this compound in some suitable vehicle. It is probably well known to some and a total stranger to many others.

This subject has been treated by Mr. M. I. Wilbert in the *American Journal of Pharmacy* for February, 1906, and by Mr. J. K. Thum in the same journal for November, 1910, and November, 1915. Mr. Wilbert, where cited, mentions the availability of Irish moss, quince seed, salep and tragacanth as suspending media, and suggests a type-formula in which the silver iodide is first produced and then suspended in mucilage of Irish moss. Mr. Thum used the yolk of fresh eggs with ideal results, but brought about the formation of silver iodide in the presence of the yolk, instead of first forming the silver iodide and then suspending it as suggested in Mr. Wilbert's formula. Mr. Thum described mucilage of Irish moss as being, next to the egg yolk, the most efficient and satisfactory agent. Mr. Thum also used solutions of gelatin ranging in strength from 0.1 to 0.5 percent, which after frequent shaking during twenty-four to thirty-six hours brought the silver iodide into suspension; the solution containing 0.3 percent gelatin is mentioned as giving almost perfect results.

But it was our good fortune to be ignorant of this specific information, when about two years ago a physician gave an order for some five percent silver iodide emulsion to be ready in half an hour. We knew how to make silver iodide, but we had never been called upon to suspend it, and our inexperience in the matter gave us no little concern as we reflected on the possibility of turning out a satisfactory product.

We knew that an " emulsion " of silver iodide is used for photographic plates, and that gelatin is employed in this connection as the emulsifying agent, but not in a manner fit for our needs. Running over the list of eligibles in our minds, we felt that any one of several mucilages recalled might be as well suited as gelatin, and someone among us in the store remembered having heard of mucilage of Irish moss being used for the purpose. Coincidentally we were thinning some mucilage of tragacanth for pasting labels, and grasping the opportunity we took advantage of its readiness, and in less than the allotted time had an emulsion of fine appearance in the physician's hands. He remarked that he would need more within a few days, so we immediately prepared another portion with the mucilage of tragacanth, both to be ready and also to learn how well it would keep. For comparison, another lot was made with the aid of mucilage of Irish moss. Within a few days the emulsion produced with tragacanth had begun to darken somewhat and showed a tendency to settle a coarse curdy precipitate, while that made with Irish moss retained its light yellow color and consistence for a much longer time. In fact, the color never perceptibly changed, although the silver iodide settled to some extent in the bottle.

Later, the physician reported that the lot which he received had retained its original appearance until used. But the use of Irish moss mucilage had, to our minds, improved the appearance and stability of the product so greatly that we decided to use it until an opportunity to look further into the matter of suitable suspending agents should come.

* Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

Accordingly, we examined mucilages made from sassafras pith, flaxseed, salep, elm, quince, dextrin, starch, and acacia, all of which are well known in use as emulsifying agents and emollient vehicles. We also repeated our experiments with tragacanth and Irish moss, and at the same time tried solutions of gelatin and egg albumen. Yolk of egg was not tried during this period, for it was looked upon as of itself too readily changeable.

After our experiments had been made and our conclusions drawn, we were apprised of the articles written by Mr. Wilbert and Mr. Thum. We have said it was our good fortune to be ignorant of the specific information given by these gentlemen; now the reason for so saying is not that we do not appreciate their work nor declare for their priority on all points in common, but had we known of their publications we most likely would not have made the many experiments performed for the purpose of this paper, and thereby would have been deprived of such knowledge as we have gained through personal experience with this subject. However, we present our experiences because they not only essentially conform to and thus confirm the statements of these gentlemen, but also mention some matters of interest not touched upon in their contributions.

Our object in making these experiments was to devise a plan to quickly produce a finely divided suspension of silver iodide and do so by introducing as little suspending material as possible.

Silver iodide is affected by light, especially the actinic rays, when concentrated by a lens, but it is not so rapidly affected by diffused daylight or artificial light that it shows perceptible change in the time required to make an emulsion, and for that reason none of these processes need to be conducted in a dark room. Indeed, silver iodide has proven to be so permanent in these emulsions that we look upon the theory of its use as an antiseptic as somewhat of a conjecture of fact and fancy, to be settled by each practitioner for himself.

Unless otherwise specified our experiments were made on the basis of five percent silver iodide. Where a recognized formula for a mucilage existed, the prescribed strength and mode of preparation was followed, and the product used in the first trials with each individual mucilage.

The amounts of silver nitrate and potassium iodide needed to give the required quantity of silver iodide were calculated from the terms of the following well-known reaction:

$$\underset{168.69}{AgNO_3} + \underset{164.76}{KI} = \underset{233.02}{AgI} + \underset{100.43}{KNO_3}$$

the symbols of which, designated in molecular weights, as shown under them, respectively, indicate that 168.69 parts of silver nitrate require 164.76 parts of potassium iodide to produce 233.02 parts of silver iodide with the simultaneous formation of 100.43 parts of potassium nitrate.

In the course of this paper it will be pointed out that the specific gravity of mucilage of Irish moss, no matter how long macerated when prepared, is but negligibly more than water, therefore in our calculations for a five percent suspension we used 456 grains, or the weight of a fluidounce of water, as the 95 percent of vehicle per fluidounce, which calls for twenty-four grains of silver iodide as the five percent sought. By ratio, we find that 17.375 grains of silver nitrate is required to yield this silver iodide. A close scrutiny of the figures involved in the chemical reaction reveals the fact that just a little more of silver nitrate is required than of potassium iodide for accurate and complete interchange with each other.

Now the United States Pharmacopœia requires silver nitrate to be practically pure, so no allowance need be made on its part for impurities. But the same authority permits potassium iodide to contain one percent of impurities, consisting chiefly of chloride, carbonate and free hydrate, hence some allowance must be made for their most probable presence; and to commensurate for any deficiency of actual iodide, it has been suggested to use a slight increase over the theoretical amount of potassium iodide, and make the quantities of the two chemicals equal. This was invariably done by us, after we had learned by experience that as little as one-fortieth of a grain of unaffected silver nitrate which might remain in solution would very rapidly bring about discoloration of Irish moss mucilage.

There can be but little, if any, objection found to the presence of a minute excess of potassium iodide over that actually required, as it is imperative to completely precipitate the silver so that no soluble salt of it remains in solution, to act either as an undesirable application or as a factor to discolor the emulsion.

For quantities greater than one ounce of five percent emulsion, simply multiply 17.375 grains by the number of ounces required.

Silver iodide can, of course, be precipitated, washed, and then suspended in a mucilage, although it requires longer time to get it finely divided by agitation or stirring, and for this reason the plan is not so well suited for hurried calls.

The products of our numerous attempts with this plan were not nearly so uniformly satisfactory as when the silver and potassium salts were dissolved each in one or two fluidrachms of distilled water and each solution diluted with a mucilage to half an ounce before mixing to form the insoluble silver iodide. In other words, the smoothness of the suspension was almost always superior when the reaction was brought about in the presence of a suitable mucilage, and if there is any chemical activity in the preparation, or if it is used solely as a protective application, it must be granted that the more finely divided the silver iodide the greater its efficiency.

When the precipitated silver iodide is not washed before suspending it, the emulsion will, of course, contain the potassium nitrate produced in the reaction, as also any excess of potassium iodide and other soluble salts originally present in the potassium iodide.

The amount of potassium nitrate formed in the preparation of a five percent emulsion is 10.34 grains per fluidounce, which equals a 2.27 percentage strength, which is three to four times the strength of the usual physiological or normal salt solutions. When intended for use in the eye, it may be thought necessary to rid the emulsion of soluble salts, although this may not be necessary in all cases, especially when we recall that ten to fifteen grains of borax or other salts are not infrequent ingredients in a fluidounce of eye drops. As a genito-urinary application the presence of these potassium salts is probably of little moment.

But if, for any reason, the emulsion must be free from soluble salts, the silver iodide may be produced from the water solutions of the necessary substances, thoroughly washed with either hot or cold water by decantation, and then incorporated in the suspending medium. Mucilage of Irish moss will serve here either hot or cold. Experience demonstrates that silver iodide settles very rapidly in hot water, and the expectation here would be to see the same thing happen; on the contrary, however, the hot mucilage envelops the silver iodide and overcomes this tendency to settle. Or, as we have found to be thoroughly practical when mucilage of Irish moss was employed, the emulsion may first be prepared by precipitating the silver iodide in the presence of the mucilage and the product then subjected to dialysis, using the ordinary parchment powder papers of the store as the necessary septum.

The former plan, for some reason which we have been unable to discern, unless it be attributed to allotropic conditions of the silver iodide, does not always show as smooth suspensions as would be desired; while the process of dialysis has almost always shown an improvement in this appearance, and has proven a simple expedient in ridding the emulsion of all crystalline matter.

Should it be deemed necessary to sterilize the emulsion either with the salts present or removed, it will be found that the preparation made with Irish moss will withstand this process. A sample subjected to streaming steam for three successive periods of twenty minutes each showed no change except a tendency to thicken slightly on the top surface, and was readily restored by shaking.

When silver nitrate was added to the several mucilages examined some of them showed a tendency to gelatinize, but none of them showed any appreciable precipitate of chlorides, so none were disqualified for such a cause.

Mucilage of sassafras pith, U. S. P., two percent, failed to suspend the silver iodide, as did also a ten percent strength of mucilage. Both products showed stringy coagulations and curds and upon standing and shaking did not improve in miscibility.

Mucilage of flaxseed, twenty percent, did not serve the purpose nor did one of 100 percent strength. The silver iodide went down in veritable lumps which were difficult and sometimes impossible to shake through the liquid.

Mucilage of salep, N. F., one percent, did not satisfactorily suspend either three or five percent of silver iodide, and failed to preserve it; while a five percent salep mucilage suspended three percent of silver iodide moderately well, but very soon showed a change in color.

Mucilage of elm, U. S. P., six per cent, was not a satisfactory suspending medium by any means; neither was a twenty percent strength. This mucilage behaved very much like mucilage of sassafras pith.

Mucilage of quince, N. F., Appendix, of two percent strength and even one of double strength did not suspend either three or five percent of silver iodide. The ten percent mucilage yielded variable results, since in some instances it failed outright and discolored, while in others it gave quite satisfactory effects; and one of the most presentable three percent emulsions, obtained from any experiment we made, was afforded by a twenty percent mucilage of quince after twelve hours, almost without shaking, although when first made it was a hopeless looking mess of feathery precipitate. We have never been able to exactly duplicate this particular result, which emphasizes the uncertainty of quince mucilage. In the weaker strengths, when the mixtures did not approximate suspension, discoloration was soon observed. When silver nitrate is added to quince mucilage it coagulates it to an almost jelly consistence which requires long stirring to render it sufficiently thin to enable one to proceed with the work. It will therefore be recognized that quince mucilage is very poorly adapted to the purpose.

Mucilage of dextrin, N. F., thirty-three and one-half percent, suspended the silver iodide, but decomposition began to show almost immediately.

Mucilage of starch, B. P., was prepared by thoroughly cooking starch with boiling water in the proportion of twelve grains to the fluidounce. In this strength of starch mucilage the silver iodide mixed, but quickly settled, leaving a perfectly clear supernatant liquid of about one-third to one-half of the volume. This preparation had the distinction of being the only one from which the emulsified part separated to leave a clear liquid. A mucilage of twenty-four grains to the fluidounce behaved similarly.

Starch showed but very little tendency to discolor, and seems to be suitable so

far as appearance of emulsion is concerned, although on several occasions samples of it became mouldy and displayed a musty odor within a week.

Mucilage of acacia, made according to the U. S. P. formula of thirty-four percent with thirty-three percent of lime water, had a slight acid or nearly neutral reaction. An alkaline mucilage must, of course, be avoided. The slightly acid mucilage of acacia gave good results, as did also a mucilage of the same strength made without lime water and possessing a strong acid reaction to litmus.

Half strength and quarter strength mucilage of acacia also showed good effects. These mucilages contain so much more solids than Irish moss mucilage, however, that they cannot be recommended in its stead.

Mucilage of tragacanth, U.S.P., six percent, made with or without glycerin, was entirely too viscid, but reduced to one-quarter strength with water it suspended the silver iodide quite satisfactorily, but upon standing for a week or more showed in some samples an inclination to granulate, although some products containing it stood for months without showing much change in color. It can well be considered fit for any emulsions intended for prompt use; although it cannot be prepared as quickly as mucilage of Irish moss and for this reason is not as desirable.

Solutions of gelatin were tested as emulsifying agents only to find that concentrated ones were impractical to use in the presence of silver nitrate because it coagulated the gelatin so intensely; and that solutions which are diluted sufficiently to permit the addition of silver nitrate have very little immediate suspending action on it. For these reasons gelatin was discarded.

Egg albumen in full strength was coagulated so firmly by silver nitrate that it was rejected. Diluted with an equal volume of water it could be put through the process, but the result was a very curdy precipitate and so far from being satisfactory as scarcely to deserve mention along with Irish moss, tragacanth, acacia and starch.

In our original experiments little attention was intended to be given suspending media of animal origin, for the reason that they would putrefy. But after reading Mr. Thum's notes on this subject we decided to repeat our tests with gelatin and egg albumen, and also try yolk of egg. As reported by Mr. Thum, we also found yolk of egg to be a very efficient and prompt suspending material, but the emulsion began to show a change in color in less than a week.

Compared with the preparation from Irish moss, it cannot be considered in any way superior.

From the foregoing statements it will be observed that some of the mucilages which have been treated of satisfactorily suspend silver iodide but discolor so rapidly as to be impractical, while others among them did not suspend it at all, even when tried in much greater strength than the recognized formula for that particular mucilage.

We have now reached mucilage of Irish moss, N. F., three percent. It is undoubtedly the best practical emulsifying agent of all examined for the purpose, as every trial and test of it has proven. Its dependability and stability will unquestionably gain for it the commendation of all who try it for this purpose.

But before proceeding to tell the results of the experiments with the mucilage and silver iodide, mention should be made of some of the properties of Irish moss itself which were observed during these experiments. When dried it loses but a trifle in weight, indicating an almost total absence of moisture in its make-up.

The sample we examined and used for these experiments showed a loss of approximately ten percent of weight through the washing required to remove all but a faint trace of chlorine; the chlorine so removed represented in terms of

sodium chloride six percent of the original substance. The water-insoluble substances present in the sample of moss amounted to ten percent, which indicated a total of eighty percent of available water-soluble matter for mucilage.

As hereinbefore stated, it is a remarkable fact that a fluidounce of mucilage of Irish moss made according to the N. F. directions weighs but two and a half to three grains more than a fluidounce of water, making the increase in specific gravity over water practically negligible in all calculations, as it affects but the third decimal place. This fact remains the same whether the mucilage is prepared with hot or cold water. A fluidounce of the mucilage was evaporated in a platinum crucible in order to check up this paradox; the residue weighed less than three grains.

Mucilage of Irish moss is practically neutral to litmus paper, for it shows but the faintest acidity, and a very minute amount of fixed alkali will render several ounces of the mucilage alkaline to litmus and phenolphthalein.

Mucilage prepared by macerating Irish moss in cold water serves in every respect as well as the mucilage prepared with hot water and allowed to cool.

A series of mucilages were made by maceration in cold water for periods of fifteen minutes, thirty minutes, one hour and three hours, respectively, with the result that a fluidounce of the thirty minutes, one hour and three hour samples were on an average within a grain of each other in weight, while the fifteen minute sample was within half a grain of the weight of the thirty minute specimen, demonstrating that thirty minutes maceration with cold water will produce a satisfactory mucilage.

After a number of tests made with the mucilage prepared in strict accordance with the N. F. directions, we finally devised the following plan, basing it on the results of our experiments:

Rejecting brown and harsher portions of the moss, select a few well-bleached and finely curled pieces to obtain the weight required; place these in a graduate and wash with several changes of water; as the texture softens, spread the branches to insure thorough washing; six to eight changes of water within two to three minutes will be found to be sufficient to remove the adhering chlorides. By this time the moss begins to swell and display a gelatinous surface and a test of the washings made now will show but a faint indication of chlorides. There need be no fear of overdoing the washing and thus losing mucilage, for as has been pointed out there will be an abundance of mucilage left to saturate the water. The moss is now macerated in a fresh portion of cold water with frequent stirring for half an hour, then expressed through well-washed muslin used double thick to obtain a clean mucilage. For each fluidounce of five percent emulsion to be made, 17.375 grains of silver nitrate are to be dissolved in one fluidrachm of water and this solution mixed with three fluidrachms of mucilage of Irish moss. The same amount of potassium iodide should be dissolved in one fluidrachm of water, and its solution diluted to four fluidrachms with mucilage. The two solutions are now to be mixed by stirring together in order to thoroughly break up any curds of the silver iodide and facilitate suspension. The product may now be transferred to suitable containers.

In carrying out this process, it will be noted that the addition of silver nitrate to mucilage of Irish moss shows but little opalescence; but the silver nitrate causes the mucilage to thicken almost to the point of gelatinization, although it can be stirred into a uniform consistence. On the other hand, the effect of the potassium iodide was to lessen the viscidity of the mucilage of Irish moss.

The entire quantities of the solutions may be mixed at once, or one may be gradually poured or dropped into the other with constant stirring; there appears

to be but little difference in behavior, unless it be that, when the entireties are mixed, more time is required to shake or stir into a uniformity of appearance. It seems not to matter which solution is poured into the other, for although silver iodide will dissolve in concentrated solutions of potassium iodide, the solution here employed is entirely too weak even in the beginning and of course is becoming weaker and weaker as the reaction progresses. The emulsions prepared with mucilage of Irish moss present at the time of reaction have seldom, if ever, failed to be smooth and uniform. We have never had a sample prepared in this manner darken or display any decided change in color, but we have had several samples made by first precipitating the silver iodide, washing, and then suspending, begin to darken within a few days.

Emulsions made with Irish moss may be diluted with water or with moss mucilage to make weaker preparations. Dilutions made with water settle more rapidly than those made with mucilage—a natural inference. Suspensions in Irish moss never settled entirely clear, as did starch emulsions. When the precipitate does settle in moss mucilage it appears to be still enveloped by the viscidity of the vehicle and may be easily restored by shaking. A sample prepared last August demonstrates this condition very effectively. It is also possible to make a ten percent emulsion with moss mucilage, a sample of which prepared a few months ago is here shown (at Association meeting).

Owing to the heavy nature of silver iodide, it is evident that no emulsion should be used without shaking. In all of our experiments flint glass vessels and containers were used, and found to be thoroughly practical, and prolonged contact with cork stoppers has not in the least affected any of the emulsions which were satisfactory when first made, circumstances which compel us to believe that when once formed and protected with mucilage, silver iodide is quite a stable substance; in fact a sample exposed to bright direct sunlight for two days darkened but little, while a specimen unmixed with mucilage of Irish moss had turned dark gray within an hour under the same influence.

Failing in an attempt to filter an emulsion made with Irish moss, it occurred to us to dialyze it as a means of removing the salts in solution, and as a septum we used ordinary parchment powder papers. It required about twenty-four hours and five or six changes of water to extract practically all of the soluble salts. The emulsion was improved in appearance and consistence, through the removal of the crystalline constituents. A comparison was made by allowing a few drops of the original emulsion to spontaneously evaporate upon a smooth glass surface, with the result that the salts in solution were left as a crystalline centre in the residue, while a like performance with an emulsion from which the salts had been dialyzed showed no such crystalline residue, but instead a surface and appearance almost as smooth as a photographic plate.

The potassium nitrate left in the emulsion prevents the mucilage from decomposing, at least so far as odor is evidence. A sample prepared in August, 1915, gives no indication through odor of any change, whereas mucilage of Irish moss alone will within a week to ten days become obnoxious. Likewise, an emulsion from which the salts had been dialyzed developed an odor of putrefaction within a couple of weeks.

While it is evident that emulsion of silver iodide prepared by the method outlined will keep indefinitely, still if there is but an occasional call for it, and no need of keeping it ready made, the plans here and elsewhere given furnish a quick and thoroughly practical method for its production. But no matter which vehicle is used the facility with which silver salts are reduced by certain agents

must be remembered so that all utensils used will be scrupulously free from such disturbing causes, for aside from these there is little chance of failure.

Upon comparing mucilage of Irish moss with the other available vehicles, its advantage over tragacanth will be seen to lie in the ease of preparation; while its preference over starch and acacia comes through it introducing so little substance into the preparation.

The advantages of mucilage of Irish moss may then be emphasized as follows:

It can be depended upon as an efficient suspending agent.

It is easily and quickly prepared.

It gives a permanent emulsion.

It supplies a sufficiently viscid medium though adding but a trifle of solid matter.

It is as inert as any other suitable substance.

It is inexpensive.

While yet concerned with this subject a few words will be said regarding the sulphur which is present in Irish moss. To one who had never incinerated a vegetable drug and found a mass of hepar sulfuris as the resulting ash, it was a revelation to encounter such when some unwashed Irish moss was subjected to a bright red heat. With a lower heat very little sulphide is formed, but raised to bright redness, one can see a phosphorescence as of free sulphur burning, although sulphur dioxide could not be detected by odor. The fused mass amounted to 21.25 percent of the original weight. Chlorides were present, of course.

Sulphates, earthy phosphates, carbonates, iron, aluminum, and silica were other constituents encountered in the examination of this ash, but no complete analysis was attempted.

A second weighed portion of moss was washed until it began to gelatinize, then dried and ignited. The result showed ten percent of ash and contained abundant alkaline sulphides, and a little chlorides.

A third weighed portion was completely exhausted by repeated applications of boiling water, the residue was dried and weighed. This insoluble part represented ten percent of the original substance. It was next incinerated and found to yield 2.5 percent of ash, calculated on original moss. The ash from this treatment was snow-white; it contained neither chlorides nor sulphides, but consisted of silicious matter. It is worthy of remark that in whatever form the sulphur exists in Irish moss, it has arranged itself in a very accommodating manner, so far as our present use for the mucilage is concerned.

SYRUP OF TEA FOR ICED TEA.*

BY CHARLES H. LAWALL AND M. R. LAWALL.

One of the overlooked opportunities of the pharmacist during the summer season is the preparation and sale of a concentrated syrup from which iced tea may be instantaneously made by the simple addition of water, ice and lemon.

Iced tea is one of the most popular of summer drinks taken with meals either at home or in restaurants. It is somewhat of a bother to prepare in the home and the average housekeeper would doubtless welcome a simplification of this portion of her summer work connected with the family menu.

That the plan is practicable and the syrup permanent when properly made has

* Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

been demonstrated during two summers in our own home and we believe that the idea would be a moneymaker if properly used.

The flavor of iced tea does not markedly differ as to whether it is made from cheap or expensive tea, the added lemon masking any differences distinguishable to a connoisseur. Tea siftings, which are always obtainable at a very low price, have been used by us and in the preparation of the samples illustrating this paper. The procedure is as follows for a plain tea syrup, which seems to be the most permanent and satisfactory:

Tea siftings.....1 pound (av.)

Place in a glass percolator after moistening slightly with cold water, pack firmly, and pour boiling water over the tea until 64 fluidounces of percolate has been obtained. Place 7¼ pounds of dry granulated sugar in 1 gallon bottle, add sufficient of the tea infusion to fill the container and dissolve the sugar by agitation, subsequently sterilizing the finished preparation in the customary manner. As it is a little difficult to dissolve the sugar by agitation, the sugar may be dissolved during the sterilization.

This plain tea syrup, when served in the proportion of about 2 fluidounces to the glass (the tall iced tea glass is meant), flavored by adding a slice of freshly cut lemon and diluted with ice water (adding a piece of ice to the glass as well) makes a very satisfactory and enjoyable preparation with a minimum of trouble.

It is possible to make a lemon flavored and acidulated syrup as well, although these variations require more trouble to prepare on account of the subsequent clouding and precipitation due to the added ingredients. Several of these modified syrups are shown, all of which require clarification and resterilization, as may be readily seen. They were prepared as follows:

No. 2 was prepared in the same manner as No. 1, except that the grated rind of 16 lemons was mixed with the tea siftings before percolation and 600 grains of citric acid in solution added to each gallon.

No. 3 was prepared in the same manner as No. 1, except that the grated rind of 16 lemons was mixed with the tea siftings before percolation and a pint of lemon juice was added to the sugar before adding the tea infusion.

No. 4 was prepared in the same way as No. 1, except that 200 drops of oil of lemon were sprinkled over the tea siftings before percolation with the boiling water and 600 grains of citric acid was added to each gallon.

The effect of the citric acid is to markedly lighten the color of the preparation, as may be seen by the samples shown (at Association meeting).

A very attractive preparation in odor and taste can be made by flavoring the plain tea syrup with a blend of soluble extracts of orange, lemon and lime made for the purpose.

The tea syrup should be a popular and profitable article for sale during the summer months, either prepared as described above or by some modification developed after experimentation, according to taste.

The hours will come, and come to every man, when task-work quivers and palpitates with life; but perhaps they only come because we have been faithful, with a certain grimness, through the days of gloom. Let a man hold to his life-work through mood and melancholy. Let him hold to it through headache and through heartache. For "He that observeth the wind will never sow; and he that regardeth the clouds will never reap."—G. H. MORRISON.

MEDICATED WATERS.*

BY JOHN K. THUM.

The Pharmacopœia contains 17 medicated waters, of which 6 are made from volatile oils and 5 of these by triturating the volatile oil with purified talc, gradually adding the required amount of distilled water and filtering. Medicated waters made in this manner are very unsatisfactory; for the first few days they show up fairly well, but from then on they rapidly change for the worse, so far as appearance and pleasant flavor obtain.

Now the United States Pharmacopœia does not insist that these waters must be made according to this procedure, as the following quotation from it clearly indicates:

> The Medicated Waters, when prepared from volatile oils, are intended to be, as nearly as practicable, saturated solutions which must be clear, and free from solid impurities. In the processes which follow, the solution of the volatile oil is facilitated by the use of purified talc; but the solution may, if preferred, be aided by replacing the purified talc by pulped or shredded filter paper; waters may also be made by the addition of volatile oils to hot water and separation of the excess of the former, or by the distillation of the drug or the volatile oil with water, if by either of these methods the finished product corresponds in all respects with the official requirements.

Bitter Almond Water is directed to be made by dissolving the oil in distilled water by agitation and filtering through a wetted filter paper; no mention is made of using hot water. By this method a water is obtained that looks well and retains its appearance indefinitely. Creosote Water is directed to be made in the same manner, and Chloroform Water in a manner that is somewhat similar; in this case the procedure is as follows: Add enough chloroform to a convenient quantity of distilled water, contained in a dark amber-colored bottle, to maintain a slight excess of the former after the contents have been repeatedly and thoroughly agitated. When required for use pour off the needed quantity of the solution, refill the bottle with distilled water and saturate it by thorough agitation, taking care that there be always an excess of chloroform present.

In 1913 the writer presented a paper in which he advocated the making of camphor water by agitating small pieces of camphor with distilled water in a bottle and replenishing the dispensing bottle by pouring through a piece of gauze tied over the neck of the stock bottle. He is still wedded to that method of making camphor water. Success with this method naturally led to experiments with the other medicated waters and it was found that fine waters, that remain clear indefinitely, can be made by simply agitating the volatile oils with distilled water and filtering through a wetted filter paper in the same manner that the Pharmacopœia suggests in the making of bitter almond and creosote water.

The technic for this method of making medicated waters is very simple and is as follows: Eight mils of volatile oil are poured into a four-litre bottle and distilled water added in portions, the bottle being vigorously shaken after the addition of each portion; sufficient distilled water is then added to make up to four litres.

When the dispensing bottle requires replenishing the stock container is well shaken and the medicated water filtered through a filter paper.

Since making our medicated waters in this manner we have never been troubled

* Read at the meeting of Pennsylvania Pharmaceutical Association, June 22, 1916.

by the development of fungi or the growth of other microörganisms. This is certainly an advantage that the practical pharmacist can appreciate as well as the fact that his medicated waters are always clear and sightly.

The saturation of these waters can easily be determined. If to an equal amount of water a 50 percent solution of magnesium sulphate is added, there is at once developed a distinct cloudiness.

GERMAN HOSPITAL, Philadelphia.

THE CULTIVATION OF CASTOR OIL PLANT AS A COMMERCIAL POSSIBILITY: RICINUS COMMUNIS, PALMA CHRISTI.*

BY JOSEPH L. LEMBERGER.

Always an admirer of the beautiful palma christi, a thought possessed the writer to plant some of the seed of the variety known as Ricinus sanguineus, a beautiful, stately and highly colored plant, and note results as to its commercial value. My experience was satisfactory beyond expectation, having no previous thought beyond that of an ornamental bush, and when the fact has materialized, that the castor bean can be cultivated as a commercial product a large agricultural asset will be attained.

After the season had closed correspondence with seed crushers and vegetable oil producers has convinced me that the subject is entirely feasible and deserves more than passing attention—weather conditions appearing as the only doubtful factor. This also applies to other crops as well.

The cultivation is very simple. The seed will generate almost anywhere, provided the soil is good. Experiment is being made this summer by planting the seed along the fences where the plow and harrow cannot be used, and only when the commercial fact is proven or established, need we think of field culture.

I am interesting farmers in my county and experiment will be made on a much larger scale—will try some waste places on the farm, and, if successful, may publish the results, if spared, some future time.

It will be interesting to know that there is not at this time any attention paid to cultivation of castor oil beans for commercial purposes in this country. After the writer began formulating this paper, searching for data, etc., reference was made to Professor Wm. Procter's article along similar lines in 1855, giving a particular account of the mode of cultivation in western states (*American Journal of Pharmacy*, vol. xxviii, p. 99). At that period we remember the *St. Louis Brand Castor Oil* stenciled on the boxed containers and barrels of castor oil. The present generation of pressers of the castor oil seed know nothing of the industry of that period and it is evident that there is no longer any attention given to the cultivation of the castor oil bean as an industry. The journal quoted from has the following, which I prefer to make part of this paper as a pleasant memory of our departed friend:

Southern Illinois is the source from whence all the beans are brought that are sold or manufactured in St. Louis. The ground is prepared as for other crops, and when there is no longer any danger from the spring frosts, the seeds are planted in hills and rows, much in the manner of planting Indian corn, with the

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*Read before the annual meeting of the Pennsylvania Pharmaceutical Association, June 22, 1916.

exception that there is but one seed put into each hill, and that at every fourth row a space is left sufficiently wide to admit of the passage of a team for the purposes of gathering the crop. Unlike the cereal grains the ricinus bears at the same time flowers and fruit, and the severity of our climate, which renders it in this latitude an annual plant, destroys its vitality whilst yet decked with bloom. The ripening commences in August, and the crop is gathered at intervals from this date till the plants are destroyed by the frost.

The yield, of course, varies with the quality of the soil, and the care of the culture. Twenty-five bushels from an acre of ground is considered a very large crop, and is but seldom obtained. From sixteen to twenty bushels per acre is a very fair yield in a season not marked by drought or other unfavorable feature.

Year.	Crop in bushels.	Factories in Illinois.	Factories in St. Louis.	Barrels of oil made.	Equivalent in gallons.
1850	250,000	18	2	9900	350,000
1851	160,000	7	2	7000	255,000
1852	90,000	5	2	5500	192,500
1853	65,000	3	3	4200	147,000

The estimated crop of beans for 1854 is but 10,000 bushels, being almost a total failure, arising from the excessive drought that prevailed during the past summer over that part of the country. The number of mills in operation in 1854 was but five, and they only employed part of the time.

As indicated, I planted the bean of Ricinus sanguineus—I knew no other variety at that time. There are other varieties, and I have obtained and planted this year Ricinus Gibsonii, Ricinus macrocarpous and Ricinus Phillippiensis. The mature plant in my yard attained the height of about fifteen feet. The foot stalk of one of the plants, as well as some specimens of the fruit, are herewith exhibited (at Association meeting).

Through correspondence with one of the largest seed crushers and oil-producing firms in this country, much valuable information was obtained, and the following excerpts from several letters will, I feel sure, interest you:

March 23, 1916.

We have the pleasure to acknowledge receipt of your valued favor of March 22nd and are very pleased that you are interested in raising Castor Beans as a commercial crop.

If you can raise these in sufficient quantities, or if by combining with your neighbors you are able to do so, we think the experiment might be profitable.

The value of castorseed, or *castor beans*, fluctuates very much, according to the size of the crop in India, the demand for consumption in the United States, and the fluctuation in freights from India to the United States; which, in the latter case, have risen from about 20 cents per bushel of 50 pounds to $1.40 per bushel of 50 pounds, due to war conditions and the requisitioning of so many ships by the English Government.

At the present time the value of castor beans in not less than carload lots delivered to New York City points, in bags and without charge for bags, is from $2.25 to $3.15 per bushel. It has been higher and it has been within the last two years as low as $1.22 per bushel. However, we think the normal price is about $1.30 per bushel, 50 pounds being considered a bushel.

We can give you no information whatever regarding planting of these seeds, as derived from those who have planted them for commercial crops; and inquiry at the Department of Agriculture at Washington fails to elicit any information in this direction. The superintendent of a large country place, near Buffalo, has advised us that he would expect success in planting one bean to a hill and placing the hills three feet apart in rows four feet apart. We think, however, he had in mind the raising of beans for the beauty of the plant and

blossom rather than for commercial purposes; and in planting for a commercial crop it would be better to plant three beans in a hill, lest one bean might possibly not germinate. On the above basis, it would require 726 beans to plant one acre, one bean to a hill, or, say 1½ quarts or about 2¼ pounds; and to plant three beans in a hill, 2178 beans, or, say 4½ quarts or about 6¾ pounds.

We would be interested to know how this compares with your experience and to see a sample of the beans raised by you.

March 27, 1916.

We beg to thank you for your letter of March 24th, which contained very interesting information regarding the cultivation of Castorseed, with some of which we were not familiar.

We also thank you very much for the sample of the seeds you have raised and have sent them to our Laboratory for analysis as to percentage of oil contained therein. On receipt of our chemist's report, which, however, may not be for two or three weeks, as the Laboratory is very busy just now with very important matters, we shall be very glad indeed to give you our opinion of the value of the seed as compared with that shipped from Bombay, India.

April 1, 1916.

Referring to the sample of castor beans you were kind enough to send us, we beg to report that an analysis indicates them to contain about the same percentage of oil as the Bombay beans.

The foot stalk or trunk of the plant you will observe is full of pithy cellulose-membranous substance, very suggestive for wood paper pulp. Trying to determine uses for the woody portions of the plant, the writer incinerated the *burr* envelope of the seed and all other portions of the plant, and by the old process of making lye by lixiviation and evaporation obtained a fair percentage of potash, and have for your inspection a presentable sample of potassium nitrate. The experience we are passing through at this time naturally leads one to believe that we might economize, incinerating much of the refuse of saw mills—and forestry—with a view to utilizing the alkali.

In concluding this examination as to the possibilities, would define:

1. Enlarged castor oil industry in the United States.
2. As by-product, paper pulp or the conservation of alkali contents from burr to root.

As a last word, all portions of this country may not be available on account of climatic conditions, but the writer believes, from his experience, that the moist, warm regions of the southern part of this country should take advantage of the possibility. We may not be able to raise the African Ricinus as a perennial tree, as is stated by a writer, but realize the practical possibility of having annual crops of *castor oil beans* as is done with any of the familiar farm products.

The most natural privilege of man, next to the right of acting for himself, is that of combining his exertions with those of his fellow-creatures, and of acting in common with them. The right of association, therefore, appears to me almost as inalienable in its nature as the right of personal liberty.—De Tocqueville.

THE THREE ANGLES OF THE TRIANGLE.*

BY H. V. ARNY.

I count it a distinct privilege to address the graduating class of the Medico-Chirurgical College this evening. Too rarely do the three branches of medical science, medicine proper, dentistry and pharmacy, gather together on the equal footing of common interest and cordiality. Here this evening you gather in the common bond of affection for the alma mater whose diplomas you will receive on the morrow. Here each of you, while rightly believing your department of the healing art is best, recognizes "the other fellow" as a good chap, worthy of your friendship, your esteem and your confidence.

To my mind, the three departments of medical instruction represented here this evening are as essential to the well being of medicine as are the three angles to the triangle. As a spokesman of pharmacy, I am modest enough not to insist upon an equal angled triangle, but I will maintain that pharmacy is one of the angles and even dare remind our brethren in medicine and dentistry that if one of the three angles of the triangle is eliminated, the triangle automatically becomes a straight and narrow line coming from nowhere and leading to infinity.

In short there is not a practitioner of medicine or of dentistry, unless he be a mental healer or a therapeutic nihilist, who does not lean upon pharmaceuticals in his treatment of diseased conditions, and in these days of specialization such products are naturally obtained from the pharmaceutical specialist. Whether the specialist is the large manufacturer or the retail druggist is not at the present moment under consideration. The fact remains that the physician and the dentist instinctively turn to the pharmacist for their medicaments; hence my contention that pharmacy is one of the three angles of the triangle is based upon sound logic.

Let us now turn to the question of the man behind the drugs; let us consider the relations existing between the pharmaceutical manufacturer and the retail pharmacist. The past half century has seen a wonderful development of the preparation of pharmaceuticals by large concerns, even as it has seen a remarkable growth of all lines of industrial activity. It sometimes seems to the student of the problem that all individual activity is to be engulfed in the sea of corporate aggression. Second thought, however, shows me that this fear is unfounded and that for reasons which will be given later. Be this as it may, the scope of activity of the manufacturing pharmacist has increased enormously, and even those of us who a score of years ago resented the intrusion now have to admit that it is the logical result of the sound economical law, that the average man cannot successfully compete with machinery. So the manufacturing pharmacist is here to stay, despite the railings of the retail pharmacist and of those of us who are the retailers' friends, admirers and advocates.

The manufacturer is here because machinery can make things cheaper than can the hand-worker; he is here because his system permits the employment of experts in each line of which he is a producer; he is here because his sales organization permits him to let the world know that he produces certain goods.

I might add that the manufacturing pharmacist is here largely because of the retail pharmacist. In the early days of pharmaceutical manufacturing, the re-

* An address delivered June 8, 1916, at the reception given to the medical, dental and pharmaceutical graduates of the Medico-Chirurgical College of Philadelphia, by the General Alumni Association.

tailer wasted his energy in railing against the aggressions of the manufacturer rather than devising suitable means of meeting the new competition. As I have said to my students more than once: "If the druggist used the same skill in persuading the physicians of his neighborhood to prescribe the products of his laboratory, as the detail man of the manufacturer employs in 'boosting' the specialties of his concern, the detail man would not have a leg to stand upon." The best proof of the truth of this statement is the fact that most of the large pharmaceutical manufacturing concerns of to-day began in the back room of a retail drug store, the proprietor of which, twenty or thirty years ago, dared to go out after medical patronage. I recall how amused I was in my student days in Philadelphia to hear that one of my classmates was enlisted by his "boss" to go out and talk to physicians about the peculiar merits of the products of the laboratory of that particular drug store. It struck me as such a work of supererogation to tell doctors that Blank was a good druggist. That was a self-evident fact. Of course the doctors knew that he could make good products. And yet, out of those efforts has grown one of the great pharmaceutical enterprises of your city and that original "detail man" was the forerunner of a great sales force which has the world for its field.

Verily the manufacturing pharmacist is here to stay, but he will not monopolize the entire field of pharmacy unless you physicians and you dentists and you retail pharmacists so will.

A few minutes since, I pointed out the futility of the average hand-worker competing with a machine in the manufacture of average goods. But let me now say that it is equally futile for a machine to compete with a true artist in the production of an unusual piece of work.

The chromo is a very pretty ornament to hang upon our walls, but it will never wholly replace the living canvas upon which the artist has poured his soul. The phonograph and the piano-player have added much to the gaiety of nations, but despite the advertisements of interested concerns, there is a mechanical "something" about the really admirable performances of these appliances that tells one that they are "canned music." The fascinating advertisements of the Goldenstone-Silvermount clothes, with their stunning pictures of swagger youths in perfect array, tell us that the investment of fifteen dollars or slightly more will make Beau Brummels of all of us; yet somehow or other these alluring garments do not as a rule look as well on you and on me as they do on the Gibsonian models and some of us are stubborn enough to prefer to pay more to some tailor who understands our structural frailties and who uses his individuality in counteracting the defects of our frames.

The same truth applies to pharmacy. The tablet, the coated pill, the bottled elixir or even the "original package" nostrum may and do have attractiveness of appearance that many products of the prescription counter may lack, but the problem which every medical practitioner should squarely face and which is imperatively before you gentlemen who will be declared physicians to-morrow is whether you should chain yourself irretrievably to the ready-made medicine. No greater indictment of this fault of the modern physician was ever given than one which I was privileged to hear twenty years since from the lips of that prince of practitioners, Dr. Edmond Souchon, of New Orleans, who, speaking at a meeting of the Medical Society of that city, gave a word picture of the physician of the old school whose behavior at the bedside of the patient partook of the nature of a ritual. First came the clinical examination, with formal precision and studied absence of haste; then came the diagnosis with manifestations of sympathetic

interest; then came the writing of the prescription; the impressive moment when the paper was called for, the gold pencil was carefully adjusted and the ingredients written "line upon line" with time for thought given to each line. "What do you young physicians do to-day?" he queried. "You rush in, you look at the patient's tongue and feel his pulse and then you whip out your prescription blank and write 'Jones' Celebrated Pertussis Elixir,'" and bear in mind, this pen picture was drawn a score of years ago when the dispensing physicians were few and far between.

That it will be a bad day for the healing art when physicians depend entirely upon ready-made prescriptions in the practice of their calling, practically every thinking man will admit. To this, you physicians and you dentists will reply, "Oh! when my patient needs a special combination I do write an original prescription and have it taken to some pharmacist for compounding." But, I say, *what will happen when, because of the prevalence of the ready-made medicine, there will be no prescription pharmacists?*

Here is the vicious circle. The physicians claim that the average druggist is so busy with the mercantile side of his calling that he does not give proper attention to the dispensing of prescriptions; hence the medical man is forced to dispense tablets or to order ready-made mixtures; the average druggist retorts that the modern physician's neglect of the art of prescription writing has forced the druggist to give more attention to trade matters, than to his prescription department.

Like most vicious circles, there is truth in both contentions; but like all vicious circles, the truths are only half truths. The circle is defective, and should give way to the medical triangle suggested at the beginning of this address.

It is true that the average druggist is giving too much time to the mercantile side of his calling and too little attention to its professional aspects, but it is equally true that his explanation given above is sound. The trouble with pharmacy is that there are too many druggists and too few real pharmacists. In the first place, there are more drug stores in this country than there is need for. In the second place, the so-called "progress" of the past quarter century has been largely a matter of lavish expenditure. As my beloved preceptor down in New Orleans remarked to me on my last visit to that city, "I am making about as much money as I did thirty years ago, but to make this money I have to do three times the business I did then." With all this increase in the cost of doing business has come a decrease in the number of prescriptions, and if the average druggist did not turn to mercantile lines, scarcely compatible with the dignity of pharmacy, he would soon go into bankruptcy.

The statements just given suggest the retort that the physician and the public are not interested in the well being of any individual druggist or even of retail pharmacy as a whole. "Let every tub stand on its own bottom," you might say, "and if retail pharmacy is not fit to survive, let it perish." To this, my sole reply is the one given above. *It will be a bad day for the healing art when you physicians and you dentists depend entirely upon ready-made prescriptions in the practice of your calling.* Yes! even you dentists—despite the many admirable dental supply firms who cater to your needs, medical as well as surgical—have a direct interest in the maintenance of high-grade retail pharmacies where your extemporaneous prescriptions will be properly compounded and where you may obtain expert advice upon the pharmaceutical aspects of your calling.

But where amid the clutter of chain stores and "chicken sandwich parlors" that bear the name of drug stores will we find the real pharmacist; the man who prefers the compounding of prescriptions to the selling of apples and of cameras?

A goodly number indeed there are who have not gone after the false gods of commercialism.

In this city, I, a comparative stranger, could mention a score or more of pharmacists who, despite adverse conditions, conduct pharmacies with the highest degree of skill amid surroundings befitting the dignity of the profession which they truly follow. And what is still more encouraging, these gentlemen have practised professional pharmacy with marked financial success.

In addition there are hundreds of druggists in this city who could and would practise real pharmacy if sufficient pressure and encouragement from the medical and dental professions obtained.

These two words, encouragement and pressure, epitomize what medicine and what dentistry can do to bring retail pharmacy to the plane where they would have it. Encouragement of such splendid institutions of pharmaceutical instruction as your own alma mater, pressure to prevent the existence of low-grade institutions which are willing to turn out incompetents provided only that the size of the graduating class will attract still larger entering classes. Encouragement of the leaders in pharmacy in their efforts to elevate their calling by providing more stringent requirements for registration as pharmacists; pressure upon legislators by seconding the efforts of pharmaceutical legislative committees toward securing more adequate protection of the public against the indiscriminate sale of drugs, medicines and poisons by totally unqualified store keepers and by poorly qualified druggists. Encouragement of the real pharmacist by writing prescriptions for mixtures which demand skill in compounding; pressure by refusing to patronize druggists who fail to produce satisfactory extemporaneous prescriptions.

"But there's the rub" has more than one physician responded when I suggested the foregoing expedient. "If I insistently recommend a particular pharmacist, my patients think there is an unholy alliance. If I express emphatic disapproval of a certain druggist, he may make trouble for me."

There are several ways in which the physician may wield the influence just suggested. In the first place, it is not merely the privilege, it is the duty of the physician to insist that his prescriptions be properly compounded. I have known fearless physicians who have threatened to give up the case if prescriptions were taken to a certain incompetent druggist. As to recommending specially qualified pharmacists, most physicians have no qualms in recommending to their patients one or more specialists in surgery or in throat work, so why should they not likewise recommend pharmaceutical specialists? In a city of the central west, the problem was well met by the use of an associated prescription blank, on the back of which appeared the names of a dozen pharmacists scattered through the city, any one of which was well qualified in his art.

There is at the present time great need of crystallizing selection in pharmacists by physicians upon the definite nucleus of public opinion.

It is an accepted fact that the possession of the registered pharmacist's certificate does not assure pharmaceutical excellence any more than does the registered physician's certificate guarantee that its holder is an ideal physician. To be a highly satisfactory prescriptionist, one must have education, a well-equipped laboratory, surroundings compatible with the dignity of the service, and last but by no means least, a marked inclination for prescription work. Two methods of determining and of manifesting these requirements have been suggested thus far. Dr. Bastedo of New York, a graduate of pharmacy and a medical practitioner and teacher, proposes the creation of "certified pharmacists" by a joint commission of physicians and pharmacists. The other suggestion is the organization of an

American Institute of Prescriptionists, doing for pharmacy the sifting out presumably accomplished for surgery by the American Institute of Surgeons and for chemistry by the Institute of Chemical Engineers.

The standardization of pharmacy is in the air and you representatives of medicine can do much, if you only will, to bring about the reform.

And in conclusion, a special word to the pharmaceutical graduates of 1916. The institution whose diplomas you will receive to-morrow has given you thorough and sane courses of instruction fitting you for a career in either one of the two fields of pharmacy—manufacturing and dispensing. It is eminently wise, it is entirely right, that these two subdivisions of pharmacy be given equal attention by colleges. Each phase of pharmacy is necessary to the public welfare. Each phase has so much to do in its own particular sphere of influence that it has little time to encroach upon the other phase. Bear in mind that pharmacy has two patron saints, and while my studies in eschatology have not shown me the individual activity of Saint Cosmos and of Saint Damian, I am sure that one stands for manufacturing and the other for dispensing.

Some of you go out to-morrow as pharmaceutical chemists, while others of you will be dubbed "graduates in pharmacy." You have spent your college years together united by the fraternal bond of mutual interest, even though your courses of instruction have not been identical. Even so, while your future careers—manufacturing and dispensing—may be different in kind they are alike in declaring allegiance to Mother Pharmacy. Different viewpoints, the two phases may have; different opinions on certain topics may obtain; but on the other hand, there is no need for friction, since the two sides of our calling meet upon the common plane of a common service.

To those of you who are about to embark in manufacturing pharmacy, I might point out that the commencement season suggests that you are about to begin the real battle of life. Your college has trained you and it therefore devolves upon you to acquit yourselves like the men that you are. The field is broad; the rewards, to those who win, are large. Your success, thanks to your alma mater, is largely within your own hands.

And as to you who will go into retail pharmacy, a great work lies before you. Your college has fitted you to become real pharmacists, and if you permit the siren voice of expediency to turn you from real pharmacy to mere vending, then do not join the mournful chorus which laments, "There is nothing in pharmacy." This statement is not the vaporing of a theorist; if you do not care to take the word of a "professor man," listen to what a practical man had to say on the subject in a recent issue of the *N. A. R. D. Journal.*

"It is one of the queerest paradoxes of the times that a pharmacist will spend time, effort and money to become a professional pharmacist; that is, to learn how to prepare and dispense medicinal preparations and as soon as he does know how, he spends the greatest part of his efforts to sell drug store merchandise. It is, of course, largely necessary, according to modern ideas, that the drug store be a miniature department store, in order that the net profit be sufficient to provide an adequate income. But why the most profitable department is absolutely neglected in a great number of instances passes the comprehension of all thinking and intelligent pharmacists, who are making a financial success of this branch of their undertaking."

The hour is at hand when you will have to choose between real pharmacy and third-rate shop keeping. Each of you has the knowledge essential to the practice of real pharmacy. The future will show whether you have the will to dare to stick to the ideals of true pharmacy.

STATE BOARD EXAMINATIONS.*

BY ROBERT L. MORLAND, MEMBER OF THE MINNESOTA STATE BOARD OF PHARMACY.

It has often been the subject of comment and inquiry that so many candidates fail in the examinations conducted by our Board. There are various reasons for these failures. The Board arranges its examinations with the greatest possible care, and spends more time in conducting them and marking the results than probably any other board in the country. It endeavors, so far as possible, to avoid questions which necessitate memorizing abstract facts of no particular value, and avoids difficult prescriptions and incompatible preparations. But it is very difficult for a board to frame questions and assign practical work that will fit the mental capacity and mechanical ability of the majority of the candidates who appear before it, unless such board considers its work merely a perfunctory duty, to be disposed of in the easiest manner and in the least possible time.

The prevailing thought among the candidates of to-day seems to be to get through every task with the least possible exertion; and, therefore, it is impossible for these to show even fair knowledge or skill in pharmacy in the length of time they devote to the study of it and the manner in which they use their time.

The idea seems to be general that a thorough knowledge of pharmacy may be obtained by the average student after four years' experience in a modern drug store, or two years in such and two years in a school of pharmacy. Such a feat is not impossible, but the students who would burn the amount of midnight oil necessary to its accomplishment are comparatively few.

The young people of to-day, as a class, are not studious; they are pleasure-loving. At school, college, and university they waste a great deal of valuable time in outside activities and social enjoyments, and "cram" for examinations.

I am a firm believer in a proper amount of recreation and social enjoyment, but these should never be allowed to interfere to any serious extent with the course of study. There are, of course, in every school some who can devote a great deal of time to matters outside of the prescribed course and still keep their work up to a high level, but the majority cannot do this. When those who have wasted valuable time in one way or another appear as candidates before a quasi judicial body, such as a Board of Pharmacy, and are given examinations to determine how much of their education has been retained and how much has filtered through, then we hear complaints of the unfairness of some of the questions, the difficulty of the examinations as a whole, or the objectionable personalities of the examiners as excuses for ignorance, carelessness, or both combined.

In case you may think these strictures too severe, let me give you a few answers, taken at random, from recent examination papers:

"Rhizomes are Mediterranean stems which grow underground."

"Pilocarpus is broom tops."

"Phenol is obtained from the destructive distillation of wood."

"The source of phenol is the mines of Germany."

"Pepsin is taken from the inside of a hog; the pancreas is taken out and dried and kept in air-tight bottles."

* Read before the Scientific Section of the Minnesota State Pharmaceutical Association, Minneapolis, February 9, 1916.

" Pancreatin is taken from the calf. It is prepared in nearly the same manner as pepsin."

These last two answers are by the same candidate.

" A fixed oil is an oil that is made by distillation or other process, and an essential oil is an oil made artificially by dissolving in an alcoholic solution, such as perfumes, etc."

" State source of paraffin." Answer: " From the whale."

" Pepsin is found in the lining of the abdomen of the hog."

The last two answers are from graduates in pharmacy.

" Pepsin is found in the bile of a sheep. Pancreatin is from the fat of a hog. Pancreatin is obtained from hops or barley. Linseed oil is obtained from the cotton seed."

All of these are answers from the written portion of the examinations.

Now let me give you a few examples of how the practical work was done. Every candidate is compelled to bring with him a copy of the U.S.P. and N.F., and they have these books before them in all practical work.

" Prepare one dozen compound cathartic pills," was one of the instructions given at the last examination. The completed pills varied in weight from 22½ to 80 grains. Another example was: " Prepare six Seidlitz powders." Many of the candidates did not weigh the powders, but divided them by eye, with the result that the blue papers varied in weight in the same half dozen from 16 to 53 grains. Several of those who weighed the powders had differences of from 15 to 30 grains, and in one case 9 grains difference in the white papers. This set of Seidlitz powders, which I now present for your inspection, was made by a candidate who has had three years' experience in a drug store, but has never attended a school of pharmacy. He thought he had a good chance to become a registered assistant by examination. He had never seen the inside of a Seidlitz powder. He had never sold one except in the original wrapped packages bought from the manufacturer. The blue papers contain about 1½ grains each and the white ½ grain.

A prescription for an ointment was presented containing one drachm of mercury and two drachms of wool fat. One candidate turned in 4 drachms and 18 grains of finished product, another 3 drachms and 38 grains, and in both cases a considerable quantity was left in the mortars.

Another candidate asked for and obtained nitric acid to extinguish the mercury before adding the wool fat. Another used 1 drachm of mercuric iodide (which had been supplied for making Donovan's solution) instead of mercury.

At an examination some time ago a candidate was asked to make 12 pills of alion, strychnine, and belladonna. He took the quantity for 100 pills and divided it into 12. Scores of examples similar to the above could be taken from the results of every examination, but I think I have given enough to account for the percentage of failures being as great as it is.

Such answers show ignorance, carelessness, and lack of reasoning power, yet all of the candidates who wrote these and did the practical work just mentioned believed themselves qualified to act as pharmacists or assistant pharmacists.

What is most needed to raise the percentage of success in our examinations is to rid ourselves of the idea that a knowledge of pharmacy sufficient to entitle a person to practise it with safety to the public can be obtained in a " catch-as-catch-can " manner. It cannot be obtained by simply putting in the prescribed time in the average drug store without systematic study, or by merely attending classes in a school or college of pharmacy. Pharmacy to-day is more complex than ever. The old order of things has changed. New drugs are being used and more com-

plex preparations are in vogue than ever before. The standards of quality for all drugs are being raised, and the tests for purity increased. The pharmacist of to-day is expected, and rightly so, to be able to determine the quality and purity of the substances he uses; thus the demands made upon the student of pharmacy are constantly increasing and more time and study are required than ever before to meet modern conditions—probably more, you may say, than the remuneration of the calling warrants; but that is the fault of business conditions, not of the practice of pharmacy.

THE SAME CHEMICAL ELEMENT MAY HAVE DIFFERENT ATOMIC WEIGHTS.

Until recently it has been assumed that a given chemical element must always possess the same atomic weight, no matter from what mineral it is obtained. The inclusion of the radio-active elements in the periodic system, effected by Fajans and also by Soddy about a year ago, shows that we must assume the existence of elements which vary as much as 8 units in atomic weight, with corresponding variations in their radio-active properties (rays emitted, rate of decay, etc.), without any change in their chemical behavior. In reviewing the subject, *Umschau* observes that this conception was based on indirectly proved, or inferred, properties of the short-lived radio-active elements. Hence it was important to prove by direct experiment that two elements that appear chemically identical may have different atomic weights. The way to such an experimental demonstration was pointed out by Fajans, who concluded that the atomic weight of the lead formed in uranium ores, in the course of millions of years, as the final product of the disintegration of uranium, probably differs from the atomic weight of lead extracted from common lead ores.

This conclusion has now been confirmed experimentally by very careful determinations of the atomic weights of specimens of lead of diverse origins. The research was suggested by Fajans, and was carried out by his former assistant, Lembert, in the laboratory of Prof. Th. Richards in Harvard University, which is celebrated for its accurate methods of determining atomic weights. The atomic weight of lead obtained from uranium ores was found to be 206.6, while ordinary lead gave the distinctly different value 207.1.

The uncertainty attaching to these results is less than 0.02, and is consequently very much smaller than the observed difference. It is notable that these two varieties of lead appear to be identical, spectroscopically as well as chemically.

Analogous considerations make it appear probable that the lead of thorium ores also differs in atomic weight from common lead, but is atomically heavier than the latter. Possibly common lead is a mixture of uranium and thorium lead.

The question naturally arises whether the observed atomic weights of most elements are not merely mean values of the atomic weights of several elements which are chemically identical, and consequently not separable by chemical methods. The study of atomic weights, therefore, is confronted with a wholly new task—the investigation of the atomic weights of elements as affected by their origin—*Scientific American.*

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

Contributed by Wm. Gray, Presbyterian Hospital, Chicago:

No. 218.

FORTIFIED CASTOR OIL.

Croton Oil	1 drop
Castor Oil	4 mils

At one dose.

No. 219.

BLACK DYE FOR SILKWORM-GUT SUTURE.

Extract of Logwood	20 Gm.
Copper Sulphate	8 Gm.
Distilled Water	1000 mils

Boil the white silkworm-gut in sterile water for 30 minutes. After bringing the dye to the boiling point, add the gut and boil for 5 minutes.

Preserve in 95 percent alcohol.

No. 220.

MORHAM'S PLUG.

Sesame Oil,	
Paraffin, of each	40 Gm.
Iodoform	20 Gm.

No. 221.

GELATIN BONE PLUG.

Gelatin	30 Gm.
Water	30 mils
Glycerin	40 mils

Just before using add 2 percent of solution of formaldehyde. This is the formula of a world-famous surgeon.

No. 222.

HORSLEY'S WAX.

Yellow Wax	7 Gm.
Expressed Oil of Almond	1 mil
Salicylic Acid	1 Gm.

Mix at a very gentle heat. Used in brain operations.

No. 223.

UNG. BALSAMI PERUVIANI COMP.

"Bed-sore Ointment."

Balsam of Peru	10 Gm.
Zinc Oxide	40 Gm.
Castor Oil	50 Gm.

Mr. Gray thinks that this is the best-known treatment for bed-sores.

No. 224.

UNG. CAMPHO-PHENO COMP.

Camphor,	
Phenol, of each	16 Gm.
Zinc Oxide,	
Petrolatum, of each	240 Gm.

Triturate the camphor and phenol until liquefied and gradually add the mixture of petrolatum and zinc oxide.

A very efficacious remedy for hemorrhoids.

No. 225.

SPLENDID OINTMENT BASE.

White Wax	20 Gm.
Liquid Petrolatum	70 Gm.
Rose Water	30 mils
Sodium Borate	1 Gm.

Follow directions in Formula No. 116 (J.A.PH.A., March, 1916, p. 309).

No. 226.

ABSORBENT COLD CREAM.

Spermaceti,	
White Wax, of each	30 Gm.
Expressed Oil Almond	240 Gm.
Oil of Rose	1 mil
Oil of Patchouli	1 drop
Sodium Borate	0.3 Gm.
Distilled Water	80 mils

Follow directions in Formula No. 116.

No. 227.

THEATRICAL COLD CREAM.

White Wax	100 Gm.
Ceresin	100 Gm.
Liquid Petrolatum	400 Gm.
Sodium Borate	8 Gm.
Distilled Water	175 mils
Perfume, a sufficient quantity.	

Follow directions in Formula No. 116.

Ceresin is a hard paraffin, melting point about 55° C. It is prepared by purifying ozokerite, or earth wax, a natural mineral wax found in Galicia.

The cheaper ceresin replaces the spermaceti in Formula No. 116 and thus lessens the cost of the cold cream.

No. 228.

KIETH'S MIXTURE.

Heavy Magnesium Oxide	8 Gm.
Magnesium Sulphate	24 Gm.
Glycerin	30 mils
Mucilage of Acacia	30 mils
Peppermint Water, a sufficient quantity,	
To make	180 mils

This is a famous Scotch preparation and is used as a stomachic.

Dose: 4 to 8 mils as necessary.

No. 229.

LAMBERT TREATMENT.

(For Drug and Alcohol Addiction.)

Fluidextract of Hyoscyamus	15 mils
Fluidextract of Xanthoxylum	15 mils
Tincture of Belladonna (15 percent)	30 mils

Dose: Begin with 6 to 8 minims every hour, or until some signs of belladonna intoxication are observed. Every 6 hours increase the specific 2 minims until 14 or 16 minims are being taken every hour, but do not exceed 16 minims. If signs of belladonna intoxication are noticed, such as dilated pupils, dryness of throat, red rash, or a rapidity of speech, or sometimes the beginning of delirium, then the specific must be stopped. When these symptoms have subsided, then begin again in 8 minim doses. Some patients are very susceptible to belladonna and may have to start with 4 minims. (*J.A.M.A.*, Sept. 25, 1909, p. 985.)

No. 230.

ZENKER'S FLUID.

Potassium Dichromate	50 Gm.
Mercuric Chloride	100 Gm.
Sodium Sulphate	20 Gm.
Water	2000 mils

Add 5 mils of acetic acid to each 100 mils of above solution at the time of using, as the finished solution decomposes readily.

Used by pathologists to fix and harden tissue and to prevent breakdown of structure. (Delafield & Prudden, Physiology, p. 1030.)

No. 231.

COMPOUND SOLUTION OF THORIUM.

(For cystoscopic use.)

Thorium Nitrate	100 Gm.
Solut. Sodium Citrate (50 percent)	300 mils
Solut. Sodium Hydroxide (15 percent), a sufficient quantity,	
Distilled Water, a sufficient quantity,	
To make	1000 mils

Make a hot saturated solution of thorium nitrate and gradually add the sodium citrate solution in small portions, shaking very thoroughly after each addition. At first a white, gummy precipitate is formed, which becomes granular and finally dissolves when all of the sodium citrate solution is added.

Now neutralize with solution of sodium hydroxide and finally add sufficient distilled water to make 1000 mils.

Contributed by John K. Thum, German Hospital, Philadelphia:

PHYSIOLOGICAL SOLUTIONS.

The U.S.P. IX contains the formula of such a solution under the title of Liquor Sodii Chloridi Physiologicus, Physiological Salt Solution, Normal Saline Solution.

Besides this, a number of other formulas are in use, which are herewith published. Let it be thoroughly understood these solutions must always be sterilized. This is easily accomplished by boiling in a chemical flask for at least one-half hour. Every precaution must

be taken that no contamination takes place after the sterilization. Too much stress can not be laid on these points.

No. 232.

RINGER'S SOLUTION

Sodium Chloride	9.00 Gm.
Potassium Chloride	0.42 Gm.
Calcium Chloride	0.24 Gm.
Sodium Bicarbonate	0.20 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Also used for perfusing surviving organs, especially the heart.

No. 233.

LOCKE'S SOLUTION

Sodium Chloride	9.00 Gm.
Potassium Chloride	0.25 Gm.
Calcium Chloride	0.23 Gm.
Sodium Bicarbonate	0.20 Gm.
Glucose	1.00 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Sometimes ordered without glucose. The latter, which is not essential to the action of the irrigating fluid, is said to increase its efficiency. Therefore it might be named a heart food.

(See Howell's Physiology, p. 562.)

No. 234.

ADLER'S SOLUTION.

Sodium Chloride	0.5900 Gm.
Sodium Bicarbonate	0.3510 Gm.
Potassium Chloride	0.0400 Gm.
Calcium Chloride	0.0400 Gm.
Magnesium Chloride	0.0250 Gm.
Monobasic Sodium Phosphate	0.0126 Gm.
Glucose	0.1500 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

This solution closely approximates the blood serum in its constitution, and provides a mechanism for maintaining its reaction and for neutralizing acids and alkalies.

Contributed by Wm. Gray, Presbyterian Hospital, Chicago:

No. 235.

FISCHER'S SOLUTION.

Sodium Carbonate, crystals	10 Gm.
Sodium Chloride	14 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

The distilled water should be redistilled in Jena glass. This solution is for intravenous use.

Contributed by the Chairman:

LUTES AND CEMENTS.

These are soft and adhesive compounds, used for joining different pieces of apparatus, so as to exclude air or to prevent loss of liquid or vapor. Lutes are temporary preparations, and cements are more permanent ones.

Prof. S. S. Sadtler of Philadelphia contributed an excellent paper on this subject at the Baltimore meeting of the American Institute of Chemical Engineers, from which the following formulas are taken, as pharmacists in general should become acquainted with some of the type preparations.

(*Sc. Am. Suppl.*, No. 2104.)

WATER-PROOF.

No. 236.

Boiled linseed oil thickened with clay, asbestos, red or white lead, etc., makes a water-proof lute.

No. 237.

Ground flaxseed made into a stiff paste with water is useful as a lute for steam connections, and is easily applied.

Flaxseed meal when added to the water in a radiator will also stop leaks.

OIL-PROOF.

No. 238.

Glue	2 parts
Glycerin	1 part
Water	7 parts

Soften the glue with the water, then liquefy by heat, and add the glycerin. This lute renders corks vacuum tight and stops small leaks of almost anything, except water and steam.

No. 239.

LITHARGE CEMENT.

Glycerin	90 mils
Water	10 mils
Litharge	90 Gm.
Red Lead	10 Gm.

Mix the liquids and thoroughly incorporate the solids to make a stiff putty.

This is one of the best lutes, and is impervious to water, oils and other liquids. Very useful as a "pestle cement."

It takes several hours to stiffen and about a day to set completely.

No. 240.

Solution of Sodium Silicate, about 30° Bé.

Make into a stiff putty with whiting or barium sulphate. When magnesium carbonate is used the setting is so quick that it is hard to employ the mixture.

ACID-PROOF.

No. 241.

Litharge	80 Gm.
Red Lead	8 Gm.
Asbestos, ground	10 Gm.

Boiled Linseed Oil, a sufficient quantity.

This lute will even stand nitric acid vapors.

No. 242.

BLACK PUTTY.

China Clay,
Linseed Oil,
Gas Tar, equal parts.

Mix intimately.

No. 243.

CHLORINE RESISTANT.

Portland Cement,
Powdered Glass,
Solution Sodium Silicate, equal parts.

The solution should be considerably diluted with water, so as not to set too fast.

PLASTER-OF-PARIS CEMENTS.

No. 244.

According to Sigmund Lehner, the addition of a little borax to the water regulates the setting of plaster and produces hard cements. A mixture of 12 water and 1 saturated solution of borax sets the plaster in 15 minutes. A mixture of 8 and 1 sets in one hour.

No. 245.

MARINE GLUE.

Crude Rubber	1 part
Shellac	2 parts
Pitch	3 parts

Dissolve the rubber in carbon disulphide or oil of turpentine and carefully mix with the other ingredients previously melted.

This lute is applied warm to crevices, etc., and becomes firm, but not brittle when cold.

No. 246.

MACHINISTS' CEMENT.

This consists of white lead or red lead mixed with linseed oil. A more tenacious cement can be obtained by the addition of

Rubber or Gutta-Percha	1 part
Linseed Oil	6 parts

Dissolve the rubber or gutta-percha in sufficient carbon disulphide to produce the consistency of molasses, then mix with the oil and expose the mixture to the air for about 24 hours.

The red lead is added to form a putty. Iron oxide produces a superior cement, which is less brittle.

LEATHER CEMENTS.

No. 247.

American Isinglass,
Glue, equal parts.

Soften in water for 10 hours and boil with tannic acid until the mass is sticky.

The surface of the joint should be roughened and the cement should be applied hot.

No. 248.

Gutta-Percha	8 parts
Pitch	1 part
Shellac	1 part
Olive Oil	1 part

Melt together.

REPORTS OF COMMITTEES

ABSTRACT FROM THE REPORT OF THE COMMITTEE ON TRADE INTERESTS, PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

BY MR. HARRY B. FRENCH, PRESIDENT OF SMITH, KLINE & FRENCH CO.

MR. E. B. PRITCHARD, *Chairman:*

During the year preceding the report presented to the Thirty-eighth Annual Meeting in 1915, the same conditions have influenced the drug market as prevailed during the previous year, and these conditions are of an abnormal character, because of the continuance, during these years, of the European War. The prices of both crude drugs and chemicals continued to climb during the Fall of 1915. The abnormal heights reached were due in part to speculation, in part to feverish haste in buying, and in part to the ignorance or lack of knowledge of the buyers as to sources of supply.

During the last few months, however, there has been a decided change for the better, especially as regards chemicals. The buying apparently has been concentrated to a few and able hands. The primary markets have been sought and therefore to a certain extent the speculator has been eliminated, and finally the production of chemicals along certain lines has greatly increased in this country. The result has been, so far as regards chemicals, that speculators have become very much frightened, especially as there has been considerable talk of peace. They have had visions of the "writing on the wall," and, therefore, they are each trying to get ahead of the other in disposing of their stocks. The losses in many instances are quite heavy, and even at greatly reduced prices a market is not readily obtainable. It is difficult, if not impossible, to force the sale of goods for which there may not be an active demand, and which, although offered at very much lower than the supposed market prices, are still very much above the normal.

There are many, and we are inclined to agree with them, who think that another opinion may justifiably be held as to future conditions. Many thinkers believe that peace is not possible for a long time to come; their conclusions are, Germany will not accept such terms as the Allies are willing to offer, until the latter have shown military superiority. If, then, the war is to continue, as was predicted by Lord Kitchener, for three years, it means that this terrible struggle will probably still be going on in the latter part of the year 1917. It is with the utmost reluctance that men base their business operations on the continuance of a bloody struggle of this character, but it is necessary to take all circumstances into consideration in forming opinions and deciding upon actions. The present period of declining prices, which has been in force for the last three or four months, and has been accentuated during the last six weeks, is being prolonged by the fact that it is impossible to ship goods to Russia, for the reason that all available space, for shipments to Archangel, has been taken up, upon the opening of navigation, by the Russian Government in order to replenish their imperative wants. It is believed, however, that there will be space available early in July and that there will be large shipments to that important buyer. It therefore might happen that weak speculators may have considerably reduced their holdings, and there may arise a large demand for chemicals and a very small supply be found.

The effect of this war on botanicals was not so pronounced at first, but as time went on the shortage produced by the cutting off of some products from the commerce of the world became greater and greater. The questions of finance and transportation also played their parts. Nearly all stocks of botanicals that were bought before the war have been exhausted, and it is to be feared that the imperative needs of manufacturers during the next twelve months will be but imperfectly filled from the accessible sources of supply.

The great corporations, having hundreds of millions invested in steel, were slow in taking up the question of the utilization of the waste from their coke ovens, especially as this involved a very heavy expenditure of money in changing those coke ovens so as to ad-

vantageously secure the waste. When the work was undertaken, it was pushed forward vigorously and the production is now on a very large scale. This has already seriously affected the price of phenol, which is now procurable in a large way, in the form of white crystal, U.S.P. quality, at 75 cents per pound. It will also at a later time increase the production and lower the costs of all those products belonging to the numerous lines that are obtainable from the waste of coke ovens, and that are important enough to justify the investment of capital necessary to develop them.

One of the products, however, that does not seem to have engaged proper attention, or, if it has, the investigation has not been successful, is benzoic acid *ex* toluol. A couple of years before the war an importation was made into this country of some 40 tons of benzoic acid *ex* toluol at a laid-down cost, duty included, of about 19 cents per pound. The nominal market price to-day is $7.25, and it would not be possible to buy 5000 pounds of benzoic acid in the United States to-day at any price. The season is now coming on when there will be a great demand for sodium benzoate, and it looks as if considerable difficulty might arise in furnishing the necessary supplies.

Shipments to this country and to other countries in 1915 of citrated lime were very large, in fact, much larger than normal shipments. The capacity of the manufacturers for making citric acid has not been, we think, considerably enlarged and therefore, although working their capacity to the utmost, they have not been and will not be able to fill the speculative demands that were made upon them. The American manufacturers, however, have steadfastly pursued the policy of limiting their deliveries to their regular customers for their normal supplies, and of late have been demanding a guarantee that the goods, so delivered by them, shall not be exported from this country. It unfortunately happens at times that conditions, such as these, are accepted and evaded by selling to a third party, who will turn it over to a fourth party, who exports it. It is recognized, of course, that this method is an indirect way of violating an agreement. The manufacturers' price to-day is 67 cents per pound, which is about 25 cents above a normal price. The price for export varies from 75 to 80 cents per pound, with very little obtainable for that purpose. The earlier part of this year citric acid was sold for export, as high as $1.00. We may venture to make the statement that citric acid will be obtainable for all legitimate wants in this country at the existing price of 75 cents per pound, in barrels.

Quinine during the height of speculative excitement last fall sold as high as $2.50 per ounce in a small way and $2.25 per ounce in a large way. Many hundreds of thousands of ounces changed hands. Every holder who had a small stock, throughout the country, rushed his goods to the market to take advantage of these extraordinary high prices. Towards the end of the year and the beginning of the present year, owing to the re-organization in the methods of buying, the placing of orders at Rotterdam and Amsterdam with first hands greatly decreased the foreign demand and quinine began gradually to decline. Later, in 1916, the decline became more rapid, although in the meantime manufacturers in this country had advanced their price to 75 cents per ounce, as the cost of bark had increased. In the meantime, the stock of quinine in London had been cut down to about half of what it was a year ago, and, if the use of quinine continues on as large a scale, it looks as if at the end of 1916 the stock of quinine in London would become so reduced as to be no longer of importance. In the meantime, holders of considerable stocks of quinine, who had thought that there was no roof to the price, have been pressing their product on the market and we have been told that offers have been made at a price as low as 50 cents per ounce. The manufacturers' price continues to-day at 75 cents in 100-ounce tins. It must be remembered that it was customary to import into this country several million of ounces of quinine from Germany every year, and while there have been importations of quinine since the war, they have been of comparatively small amounts. Taking also into consideration the advanced cost of bark, and the produced stocks in London, it would not be surprising if the necessities of the warring nations, compelled to again go into the markets of the world for large amounts of quinine, might force very much higher prices.

U.S.P. alum, with potash base, was for a long time almost unobtainable, but during the past year large shipments have been brought from Japan, which country is now producing an increasing number of chemicals. The present price of powdered potash alum, U.S.P., in

barrels, is 8½ cents per pound, as compared with 5½ cents per pound for ammonia alum. We understand that ammonia alum will be official in the next Pharmacopœia.

Antipyrine was imported before the war in large quantities at something less than $2.00 per pound. During the past year it advanced to as high as $60.00 per pound. It is now in somewhat better supply and can be obtained in quantity at about half that.

The demand for caffeine alkaloid has been very large. Certain manufacturers must have it, whatever the cost, and it has sold as high as $18.00 per pound, in quantity. It seems somewhat extraordinary that this is so, because tea fluff, from which caffeine has been manufactured, has not advanced proportionately. The explanation probably is, that there are but few manufacturers of caffeine and they have taken a natural advantage of the market conditions and the large export demand.

Owing to the large export demand, and the high cost of its base material, chloroform was advanced at one time to 70 cents. This has been followed by a reaction and, at this writing, the manufacturers' price in 1000-pound drums is 50 cents per pound.

Epsom salts at one time advanced so largely that it sold at 7 cents per pound in England, and thereafter could be exported from this country at a handsome profit. The market price to-day in barrels is 3¼ cents per pound for the U.S.P. quality.

Years ago a very fine quality of asafetida could be bought for as low as 10 cents per pound. In order to increase their profits, the natives of Southern and Central Asia, where the drug is gathered, began to ship stones and dirt with a small admixture of asafetida. On the enactment of the Federal Food and Drugs Act in 1906, the law began to be enforced, requiring that the ash content of the asafetida should not be over 10 percent and that its solubility should be 50 percent or over. For a long time it was very difficult to get asafetida of this quality, but finally the market adjusted itself to those conditions, though it considerably advanced the price. Recently, however, there have been no shipments from the primary market, owing to conditions due to the war, and to-day hard asafetida is worth $1.00 to $1.10 per pound, in quantity. There are no immediate prospects of relief.

Lycopodium is one of those Russian articles that is at the moment almost unobtainable. Before the close of navigation in 1915, it was reported that two hundred ships left Russia, but were caught in the ice pack and only began to arrive some time in May. Large quantities are afloat on these vessels. The stock of lycopodium at the moment in this country is exceedingly small and it cannot be obtained in large quantities. For such as is procurable, $4.00 is asked.

The same remarks apply to Russian cantharides as to lycopodium and at this writing pure powdered Russian cantharides would bring $8.50 per pound.

As is well known, the price of all potash preparations has been very seriously advanced, because of the inability to obtain muriate of potash from Germany. The production, however, of potash in the United States is advancing. Certain enterprising citizens are gathering kelp on the coast of California, as ingenious machinery has been invented, and are now producing potash of satisfactory quality on an increasingly large scale. In due time we shall be able to supply a large portion of the demand and we hope the producers will be given sufficient protection so to prevent their industry from being destroyed at the termination of the war.

Licorice is very largely used in plug tobacco. The largest supply of the root formerly came from Mesopotamia. As our readers know, there has been severe fighting in that region between the two rivers—Tigris and Euphrates—and the region throughout there, and shipments have been practically stopped. The large manufacturers in this country are accustomed to bring this root in shipload lots, and it is found now very difficult to obtain sufficient supplies from other sources. It is thought that in a few months arrangements may be made whereby shipments may be had from Russia, which will relieve the situation. In the meantime the root and the extract of the root have very largely advanced in price, the advance being from 200 to 300 percent.

Sugar of milk at this writing is very difficult to obtain in sufficient quantity for the ordinary demands of this market. This is due to the fact that the largest manufacturing establishment was practically destroyed by fire, and because it is impossible to import milk sugar from Holland. We believe that when the factory that was burned down has been

rebuilt, the position will be very much improved, although we can scarcely expect normal prices for milk sugar until after the war.

Owing to the very heavy advance in the price of sugar and the heavy demand, saccharin has very largely advanced in price, until to-day $15 is a fair price, in quantity.

Among the important chemicals that have sold at very high prices are salicylic acid and sodium salicylate. Thousands of pounds were shipped from this country and sold in England as high as $4.00 per pound. During the past year statements have been made repeatedly that supplies would be increased, and, therefore, we might expect very greatly reduced prices. As a matter of fact, during the last few months prices have slightly declined, because the foreign demand has been somewhat reduced, but there is apparently now a revival of such demand and we may expect for the next few months that prices will be firmly maintained. The manufacturers have continued to supply their customers in very moderate quantities at about $2.50 per pound.

On account of the very large export demand, the manufacturers of borax in this country have found it necessary to advance their price and are very much behind in their deliveries.

Paris green has been very greatly advanced because of the increased cost of blue vitriol, of which about two pounds is used to one pound of Paris green, and the increased cost of arsenic. It is probable that only small quantities have been laid up in stock by the manufacturers, and if there is a large demand this year, it may be found that it will be difficult to fill the orders.

Blue vitriol at one time sold as high as 22 cents, but recently manufacturers have offered carload lots at 15 cents per pound.

The United States Government now places very stringent regulations upon the importation of cannabis indica, following the policy of the English government, who levy a heavy tax of about $1.50 per pound on every pound produced in India. It is rather interesting, however, to know that the government is encouraging the cultivation of cannabis indica in this country.

Mercury has had a very interesting career. The normal price is about $38 per flask. The early part of this year it advanced to $325 per flask because of the demand by the manufacturers of ammunition. As it was found impossible to obtain sufficient supplies of this in the open market, an arrangement was made by the British Government, for whom the munitions were being manufactured, to permit the sale by English holders to American manufacturers of munitions. As this has lessened the market demand, the price in a few weeks declined from $325 to about $80 per flask. Mercurials advanced and declined proportionately.

Glycerin advanced as high as 70 cents, but is now selling at about 55 cents per pound.

Dalmatian insect flowers are not obtainable. Japanese insect flowers, however, are of equal quality and can be obtained of 100 percent purity powdered, at about 45 cents per pound.

Naphthalene has largely advanced, and at one time this year the largest manufacturer in this country refused to accept further orders. The present market price in barrels is 13 cents per pound.

Norwegian cod liver oil was bought up by the German Government and the price advanced from a normal price of $20 per barrel to $160 per barrel.

Cut dog-grass is not an article of importance but it seems to be needed by certain parties in this country. The price advanced from a normal price of about 10 cents per pound to $1.50 per pound for the fine cut.

Imported hellebore root is almost unobtainable. A normal price is about 8 cents and the present price for powdered is about 45 cents per pound.

Salol advanced at one time to about $12, but is now being manufactured in increasing quantities in this country and is steadily declining.

Zinc oxide, U.S.P., advanced from a normal price of 8 cents to 35 cents per pound, but it has now a declining tendency, and we may expect lower prices from now on.

SUB-COMMITTEE REPORT ON U. S. PHARMACOPŒIA.*

On the eve of changes, additions and deletions in our official standards such as occur when a new pharmacopœia becomes official, it does not seem advisable to bring forward a lengthy report from the Chemists Sub-committee. U.S.P. standards are for all practical purposes part of the law of the land and when they require attention other matters must wait.

The ninth revision of the United States Pharmacopœia is practically ready for distribution and will, we are told, become official September 1, 1916.

Most of our members who are accustomed to have their products in use in the treatment of disease within a few days, or, at the most, a few weeks after compounding, will find this interval between date of issuance and date of becoming official—about three months—long enough to familiarize themselves with the more important changes and added requirements. Nearly all of our members in respect to the time required for changes are in much better position than houses most of whose products go through two, three or four stocks before reaching the person who controls their use by the consumer. It is advisable that every member procure immediately a copy of the new pharmacopœia and scrutinize it closely and then make at once any changes that may become necessary in stock or labels. The changes in chemical tests, assays and standards as made by the new book are rather numerous.

One change that is of very general interest is the introduction of the word "mil" as a new name for what has heretofore been called "cubic centimetre." The term "cubic centimetre" is discarded: we urge that our members be among the first to introduce this new term to our medical friends: just write or speak of "mils" instead of "cubic centimetres" and the change is made. The pharmacopœia will also give an official abbreviation for many of its titles: this desirable addition should be used at every opportunity.

Another feature of interest is the listing under crude drugs of the preparations containing that drug.

A chapter on sterilization is included in Part II of the new book. A more general use of sterilization in making pharmaceutical preparations will increase materially the standing and reputation of these articles in the eyes of the latter-day physicians.

Our meeting can with profit give considerable time to a discussion of the new pharmacopœia.

Since there will be considerable interest manifested in drug and medical circles in the new revision it is desirable that our members act promptly in giving our medical friends correct and concise information concerning these changes, additions and deletions. Our association may well consider preparing a booklet giving such information for distribution by our members.

ASPIRIN.

A large quantity of inert mixtures of powdered substances such as milk sugar, alum, salicylic acid, starch, etc., have been sold during the past year as acetyl-salicylic acid either in powder or in tablets.

Through the efforts of the drug inspectors of the Bureau of Chemistry the market has been largely cleared of this fictitious article, but it must be remembered that continued watchfulness is the only safe procedure.

Mr. J. P. Snyder of the Norwich Pharmacal Company presents the following identity and purity tests and your committee recommends very close scrutiny of all purchases of aspirin.

TESTS FOR ASPIRIN.

At present, a careful examination of this chemical is essential, as the scarcity of the product, and the corresponding high price, has made it liable to adulteration by unscrupulous manufacturers.

Acetyl-salicylic acid is prepared commercially by treating salicylic acid with an excess

* Presented at ninth annual meeting of American Association of Pharmaceutical Chemists, Cedar Rapids, Ia., June 1, 1916.

of acetic anhydride at 150° C. under a reflux condenser. It occurs in colorless crystals and in a white crystal powder; is odorless and has a sweet taste.

Identity Test—1 gramme of aspirin boiled with 10 Cc. of a 10 percent sodium hydroxide solution for two minutes will yield a white precipitate upon addition of sulphuric acid. This precipitate should, after thorough washings, have a melting point of 157° C. and should answer the ferric chloride identity test of the U.S.P. VIII., for salicylic acid. The filtrate from the salicylic acid should have a strong odor of acetic acid. The melting point of aspirin appears to vary more than is customary with organic chemical compounds. Emery and Wright, of the Association of Official Agricultural Chemists, Bulletin 162, Bureau of Chemistry, find the melting point of aspirin to be from 130½° C. to 131° C.

In the past year we have examined eleven samples of this product, ten of which had a melting point of 135° C. while one we found to be 133° C. When it is remembered that aspirin will decompose before it melts, we have the probable explanation for the difference in the melting point. The length of time it is heated, etc., also probably affects the melting point. Emery and Wright recommend that the rate of heating be such as will give a rise of 1° C. per minute. The aspirin that would melt higher than 135° C. or lower than 130° C. we would, however, look upon with suspicion.

Test for Free Salicylic Acid.—Five Cc. of a 2 percent solution of aspirin in alcohol diluted with 20 Cc. of water should not be immediately colored violet upon the addition of one drop of ferric chloride test solution. *Caution.*—The solution should be prepared cold and must be fresh; not more than one drop of ferric chloride test solution should be used, as there is danger, due to the acidity of the latter, of breaking down the aspirin and getting violet color from the liberated salicylic acid.

Test for Free Acetic Acid.—Aspirin should be odorless and particularly have no odor of acetic acid, indicating absence of this acid.

Test for Hydrochloric Acid and Chlorides.—A five percent solution in alcohol mixed with a few drops of nitric acid should not be affected by the addition of silver nitrate test solution.

Test for Sulphuric Acid and Sulphates.—Five Cc. of five percent solution in alcohol diluted with 20 Cc. of water, and acidified with hydrochloric acid, should not be affected by the addition of barium chloride test solution.

A solution of the salt one in twenty should respond to the heavy metals test of the U.S.P. VIII.

Resinous Impurities.—An alcohol solution evaporated to dryness in a dish protected from the dust should give a perfectly white crystalline residue.

Phenol.—If one gramme of aspirin be dissolved in an excess of sodium carbonate test solution, the liquid agitated with an equal volume of ether, the ethereal solution allowed to evaporate spontaneously, the residue should be free from odor of phenol.

Readily Carbonizable Organic Impurities.—On treating about five grammes of aspirin in a test tube with 10 Cc. of concentrated sulphuric acid, no odor should be imparted to the latter.

Estimation of Acetyl-salicylic Acid.—May be estimated by boiling with sodium hydroxide and titrating excess of sodium hydrate, using phenolphthalein as indicator. One gramme of the aspirin is boiled with 15 Cc. of normal sodium hydrate for about five minutes, a few drops of phenolphthalein added; tenth-normal hydrochloric acid is run until the pink color is destroyed.

Allen's Commercial Analysis, volume 3, page 504, 4th edition, gives the following method for the estimation of acetyl-salicylic acid, which we have found to give excellent satisfaction in our laboratories. One gramme of the sample is weighed into a 200 Cc. flask, dissolved in a small quantity of alcohol, a drop of phenolphthalein solution added and titrated quickly as possible with tenth-normal potassium hydroxide solution, volume required being noted. To the liquid a volume of tenth-normal alkali, about five Cc. in excess of that already used, is added, the solution boiled for five minutes, an excess of alkali titrated with tenth-normal acid. The total volume of tenth-normal alkali required will be double that used in the cold neutralization, if the sample is free from salicylic or any other acid. If the sole impurity is salicylic acid, every $^1/_{10}$ percent will decrease the total amount of alkali absorbed by one

gramme, 0.38 Cc. below 111.08 Cc.—the volume required by the pure acid. One Cc. of cold tenth-normal potassium hydroxide solution neutralizes 0.0180064 grammes, whilst the same volume of the boiling alkali reacts with 0.0090032 grammes of acetyl-salicylic acid. Since cold potassium hydroxide slowly hydrolizes acetyl-salicylic acid, the cold titration must be effected quickly, or erroneous results will be obtained.

When combined with salts that interfere with the estimation by the above titration method, may be estimated colorimetrically, after it has been broken down, by the addition of ferric chloride and compared with definite amounts of aspirin treated in a similar manner; this may also be used to estimate the amount of salicylic acid present in aspirin, or to ascertain to what extent it has become broken down.

J. P. SNYDER.

ANALYTICAL LABORATORIES OF THE NORWICH PHARMACAL COMPANY.

INTERESTING ALKALOIDS AND GLUCOSIDES.

According to the Pharmaceutical Journal and Pharmacist of June 5th, investigation work on the drugs and poisonous plants of South Africa has been proceeding for some time at the Imperial Institute, and in the current number of the *Bulletin of the Imperial Institute* is published a summary of these investigations as far as completed.

The results obtained are interesting and valuable. Molteno disease, a cattle and horse disease prevalent in certain parts of the Union of South Africa, has been definitely traced to the presence of a poisonous alkaloid in a plant eaten by the animals. This plant is *Senecio latifolius*, a near relative of the common groundsel. "Cape slangkop," a plant belonging to the lily family, which causes cattle poisoning in other districts of the Union, contains a poisonous glucoside similar in action to that found in the common foxglove. Among other South African plants of which the properties are still being investigated at the Imperial Institute are the roots of the "Ntsema," which are said to be extensively used by the natives employed on the Witwaters Rand mines in the preparation of an intoxicating drink known as "kali."

GUM TRAGACANTH IN PERSIA.

According to a report by the United States Consul at Teheran, the various species of Astragalus, known in Persia as "kevin," from which gum tragacanth is obtained, grow on the mountain ranges which surround the Persian plain. The bushes producing the gum grow to a height of 2 feet. In the spring, when the sap rises, parts of the branches are cut away, thereby allowing the sap to flow out, which coagulates within a few hours on the surface of the stalk. The price of gum tragacanth has increased 5 to 10 percent since the outbreak of hostilities in Europe.

The principal Persian markets for gum tragacanth are Hamadan, Shiraz, Kerman, and Kermanshah. From 150 to 200 tons are exported annually from Hamadan alone. Before August 1st, 1914, half of this amount was shipped to Russia and the other half to America and the United Kingdom, but since that date the amount shipped to Russia has been reduced to one-fifth, the other four-fifths going to America and the United Kingdom.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

DETROIT.

The Detroit Branch of the American Pharmaceutical Association met May 19th, at the Wayne County Medical Society Building. After a very enjoyable banquet, the meeting was called to order by President Scoville.

William A. Hall reported for the Nominating Committee, suggesting the following names for officers for the coming year: For president, F. F. Ingram, Jr.; for vice-president, Prof. J. O. Schlotterbeck; for secretary, O. W. Gorenflo; for treasurer, C. F. Mann; for chairman of the program committee, W. M. Chase.

On motion of Mr. Webster, a vote was taken closing the nomination. The above mentioned officers were then elected by unanimous vote. On request of Mr. Mann, the question of the disposal of the funds left over from the American Pharmaceutical Association meeting in Detroit was discussed.

It was moved by Mr. Hall and supported by Mr. Webster that the Branch note a credit of $428.51 to be held by the Treasurer subject to action of the Detroit Branch.

Carried.

Moved by Mr. Mason, supported by Mr. Mann, it was voted to pay $5.00 to the employees of the building.

On motion of Mr. Mann a vote was taken instructing the officers for the coming year to have a notice sent out with the announcement of the next meeting, requesting that a subscription of one dollar be paid by each Branch member yearly.

The regular program was then taken up.

The first speaker was E. A. Patton of the Liquid Carbonic Company. Mr. Patton gave a very interesting and instructive talk on the soda fountain. He finds much loss of business and damage to fountains due to neglect, the service of the plumber being often required from the lack of proper cleaning.

M. E. Keyes of the Detroit Creamery Company was the next speaker. Mr. Keyes, having spent many years in the retail drug business, previous to embarking in the ice cream business, was able to give expert advice on the subject of ice cream at the soda fountain.

A vote of thanks was extended to the speakers.

The President-elect then took the chair.

William A. Hall moved that a vote of thanks be extended the retiring officers.

A. A. WHEELER, *Secretary.*

INDIANAPOLIS.

The June meeting of the Indianapolis Branch of the American Pharmaceutical Association was held at the Chamber of Commerce Building, Monday, June 5th. Frank C. Carter, president, presided. A large percentage of the members were present at this meeting. F. R. Eldred was elected member of the Council for the Indianapolis Branch and C. B. Jordan was elected delegate to the Indiana Pharmaceutical Association.

F. R. Eldred spoke at length on "Some Recent Developments in our Knowledge of Nutrition," pointing out that as a result of the developments during the last few years many of the generally accepted theories bearing on the problem of nutrition would have to be completely revised. In the future, it would be necessary to speak of amino-acid requirements instead of protein requirements, as it had been shown in the case of several of the amino-acids that there was a certain minimum requirement and that any deficiency could not make up by an excess of other

amino-acids. The composition of the various proteins was therefore of primary importance. The study of nutritional deficiency diseases, such as beriberi, pellagra and scurvy, as well as the extensive experiments on animals with diets composed of pure substances, has led to the discovery that in addition to the well-known constituents of food stuffs, certain principles of unknown composition were necessary in order to promote growth or maintain nutrition. These substances were known as food accessories, or vitamines, and, although our knowledge of these substances was still very limited, it seemed to have opened an important and fruitful field for research.

Dr. A. D. Thorburn presented some notes on "Solid Extracts," calling attention to the variation in moisture, ash and acidity of these products. He suggested that some method of standardizing solid extracts be investigated.

It was decided that the Local Branch extend to the American Pharmaceutical Association a cordial invitation to hold its 1917 meeting in Indianapolis.

FRANCES E. BIBBINS, *Secretary.*

NASHVILLE.

The regular monthly meeting of the Nashville Branch of the American Pharmaceutical Association was held in joint session with the Nashville Drug Club, June 15, and D. J. Kuhn of the latter organization presiding.

Treasurer D. S. Sanders reported the financial condition of the Club as encouraging. William R. White reviewed a recent contribution by M. I. Wilbert, in which the writer maintained that alcohol tended to increase the poisonous action of phenol, when given as an antidote, and was therefore not the efficient antidote some contend it is. Mr. White urged members to acquaint themselves with antidotes, as such information is highly important in case of accidents.

A resolution was passed commending the action of Spurlock Neal Company, in publishing a full page advertisement in a local daily paper advising the public that the higher prices exacted by the retail drug trade was necessitated by the present market conditions.

The members were advised of the necessity of renewing the various licenses expiring July 1, including also the renewal of Board of Pharmacy registrations.

Dr. J. O. Burge called attention to the forthcoming U. S. Pharmacopœia and National Formulary, both of which become official September 1, and will be ready for distribution some time during July. He also referred to a number of deletions and additions and that sodium salts may in some preparations be used for corresponding potassium salts, citing effervescing solution of magnesium citrate, in which the carbon dioxide may be generated by sodium bicarbonate.

The Nashville Drug Club then elected officers as follows: President, D. J. Kuhn; vice-presidents, Ira B. Clark and C. C. Young; treasurer, D. S. Sanders, and secretary, E. F. Trolinger.

Dr. E. A. Ruddiman, J. B. Sands and E. F. Trolinger were named delegates to the Tennessee Pharmaceutical Association. A boat-ride up the Cumberland was decided on for about July 17, when the two Associations will hold a joint meeting and an outing.

WILLIAM R. WHITE, *Secretary.*

POLIOMYELITIS GERM SAID TO HAVE BEEN ISOLATED.

The New York City Health Department announced on July 11, that success had been attained in the long effort to isolate the germ of poliomyelitis. No details were given, but it was stated that a further report would be made in a few days.

Just as fear possesses the people, when a disease of this kind is prevalent, so also news items, that may be expressed hopes, find their way into print. The telegraphic report has come that a leading German scientist (name not given), who for years has been studying infantile paralysis in Scandinavian countries, where the disease is periodically epidemic, is said to have discovered a cure, which has been successfully tested. The report states that the discovery has been closely guarded in Germany, that the discoverer consulted with the German Government, and that a submarine, now under way, is carrying some of this cure to the United States.

No details regarding the nature or form of the cure are given.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 25.

PHILADELPHIA, PA., June 12, 1916.

To the Members of the Council:

Motion No. 49 (*Election of Members; Applications Nos.* 202 *to* 249 *inclusive*) has received a majority of affirmative votes.

The following communication has been received from Jose P. Alacan, of Havana, Cuba.

Council of the American Pharmaceutical Association:

GENTLEMEN:

We, the undersigned Cuban Members of the American Pharmaceutical Association, in accordance with Article 1 of Chapter XII of the Constitution, do hereby petition the Association for permission to establish in Cuba a local branch to be known as the Cuban Branch, whose objects and aims shall be the same as expressed in Article 1 of the Constitution, said Branch to be subject to the same regulations and to enjoy the same privileges as the Branches established in the United States: Dr. Estrella Delgado, Francisco Remirez, Edwardo G. Faundo, Jose Guillermo Diaz, Miss Rosa Lagomasino, C. J. Goltz, Dr. F. Herrera, Jose P. Alacan, Elisa M. Fortun, Dr. Rogelia Ramirez, Dr. M. Rebustillo, Jose Capote, A. Bosque, Augustin Ortiz and Felipe Pazos Boada.

Do you favor granting the above petition? It will be known as *Motion No.* 50 (*Petition to form Cuban Branch, A. Ph. A.*).

The following communication has been received:

CAMDEN, N. J., June 9, 1916.

Council of the American Pharmaceutical Association:

GENTLEMEN:

The members of the American Pharmaceutical Association who were fortunate enough to hear the address of Dr. S. Solis Cohen at the Boston meeting retain the most pleasant recollection of that event. The approaching meeting of the American Pharmaceutical Association and the publication of the United States Pharmacopœia, Ninth, and its promulgation as a legal authority from September 1st, are events occurring all about the same time.

It appears to be a most favorable opportunity for another address to the American Pharmaceutical Association by Dr. Cohen and I, therefore, move

That the Council of the American Pharmaceutical Association extend to Dr. S. Solis Cohen an invitation to address the meeting of the American Pharmaceutical Association at Atlantic City, on the subject of The Pharmacopœial Revision from a Medical Standpoint, or any other title that he may consider more appropriate.

Very truly yours,

GEO. M. BERINGER.

Do you approve the above motion? It will be known as *Motion No.* 51 (*Invitation to Dr. S. Solis Cohen to Address Atlantic City Meeting of A. Ph. A.*).

The Secretary of the Council has received the following communication from General Secretary Day:

"I have received a bill from Lloyd Brothers, amounting to $188.74, and covering the cost of handling and storing as well as sorting and listing the publications of the Association turned over to the Lloyd Library by action of the Association. By far the largest lot of these publications were the old proceedings and back numbers of the JOURNAL shipped from Scio in 1914, and, as you may recall, I made a visit to Scio at that time and found that during Professor Beal's absence, someone had removed the inventory of these proceedings and JOURNALS which he had prepared and it was therefore necessary to have the Lloyd Library make an inventory of the publications. The bill also includes expense of shelving and other arrangements for suitably caring for this reserved stock, and subsequently, we sent the stock of the 1912 Year-Book from Columbus and the 1913 Year-book from Easton, Pa., which was similarly cared for.

"Our present budget provides $200.00 for miscellaneous expenses, of which about $40.00 had already been expended when this bill from Lloyd Brothers was received. With the consent of the Chairman of the Finance Committee I have charged this Lloyd bill to the item of miscellaneous expenses and with the Chairman's approval I now offer a motion which is seconded by Professor Koch that

$100.00 additional be appropriated for item No. 4, Miscellaneous, of the 1916 Budget, in order to take care of this expense. This will leave a balance in item No. 4 of about $70.00 which will probably see us through the year. Please place this motion before the Council."

Motion No. 52 (Additional Appropriation of $100 for Item No. 4, Miscellaneous, 1916 Budget). Moved by W. B. Day, seconded by J. A. Koch, that $100 additional be appropriated for Item No. 4, Miscellaneous, of the 1916 Budget.

Motion No. 53 (Election of Members). You are requested to vote on the following applications for membership:

No. 250. Oswald Chapman, P. O. Box 217, "Farmacia Nacional," Central Ave and Santa Ana Park, Panama City, Rep. of Panama, rec. by Wm. B. Day and Bolivar Jurado.

No. 251. George Lawrence Crain, U. S. S. Des Moines, care Postmaster, New York, N. Y., rec. by W. B. Day and J. F. Rupert.

No. 252. Henry George Becker, Pekin, Ill., rec. by H. M. Whelpley and J. W. Mackelden.

No. 253. Sylvius Ketcham, 1815 Third Ave., New York, N. Y., rec. by Robert L. Lehman and Hugo Kantrowitz.

No. 254. Harold B. Chatfield, Hospital Steward, U. S. S. Denver, care of Postmaster, San Francisco, Cal. rec. by Wm. B. Day and J. F. Rupert.

No. 255. James Linwood Sutton, Albemarle, N. C., rec. by J. G. Beard and E. V. Howell.

No. 256. Anthony Di Cosola, 740 Independence Boulevard, Chicago, Ill., rec. by Wm. B. Day and C. M. Snow.

No. 257. Leroy Forman, 1752 N. 60th St., Philadelphia, Pa., rec. by Charles H. LaWall and Ivor Griffith.

No. 258. Mrs. Margaret Cramer Bell, North Main St., Hubbard, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 259. C. E. Craycroft, 814 N. Crock St., Sherman, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 260. Z. E. Marvin, Main and Akard Sts., Dallas, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 261. J. W. Graham, Austin, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 262. Tom J. Snell, Cooper, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 263. John W. Covey, 810 Main St., Fort Worth, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 264. Walter B. Man, Decatur, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 265. Cecil Lister Jenkins, Italy, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 266. C. R. Baxendale, Mingus, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 267. Gaston H. Wilder, 502 23rd St., Galveston, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 268. Tom O. Stell, Irene, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 269. Wm. A. Hawkins, Star, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 270. Frank Gunmar Braconier, Ph.G., 32 Churchill Ave., Campello, Mass., rec. by Howard H. Smith and Theodore J. Bradley.

No. 271. Percy Maurice McCormick, Ph.G., New Castle, New Brunswick, rec. by C. Herbert Packard and Theodore J. Bradley.

No. 272. Annabel Carter, Ph.G., Crescent Park, Waltham, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 273. Ralph Carpenter Root, Ph.G., 89 Canal St., Brattleboro, Vt., rec. by John G. Godding and Theodore J. Bradley.

No. 274. Emile Joseph Ouellet, Ph.G., 28 William St., Cambridge, Mass., rec. by Elie H. LaPierre and Theodore J. Bradley.

No. 275. Byrd Oscar Powell, Bell Hospital, Rosedale, Kansas, rec. by L. E. Sayre and G. D. Havenhill.

No. 276. John Eitel Guess, Kentwood, La., rec. by Philip Asher and Wm. B. Day.

No. 277. Henry Welsh, Magnolia and St. Andrew Sts., New Orleans, La., rec. by Philip Asher and Wm. B. Day.

No. 278. Frank Godfrey Rieger, Donaldsonville, La., rec. by Philip Asher and Wm. B. Day.

No. 279. John Russell Graham, 145 N. Tenth St., Philadelphia, Pa., rec. by Charles H. LaWall and Leroy Forman.

No. 280. Alfred Melhado, 5 Ninth St., Panama, Panama, rec. by Bolivar Jurado and Wm. B. Day.

No. 281. Myron B. Kauffman, B.Sc., Station B, R.F.D. No. 7, Columbus, Ohio, rec. by Anna G. Bagley and Geo. B. Kauffman.

No. 282. Zeb W. Rike, Farmersville, Texas, rec. by E. G. Eberle and C. A. Duncan (A. Ph. A. Prize, Baylor University, College of Pharmacy).

No. 283. Enos Alexander Hilterbrand, 4011 Colonial Ave., Dallas, Texas, rec. by W. H. Cousins and E. G. Eberle.

No. 284. Arno A. Coleman, Care of Greenwood Drug Co., Greenwood, S. C., rec. by E. G. Eberle and Charles H. Huhn.

No. 285. William Farquhar, S. W. Corner Public Square, Bucyrus, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 286. Richard Matthew Dumphy, U. S. S. Castine, Care of Postmaster, New York, rec. by Wm. B. Day and J. F. Rupert.

No. 287. Walter R. Jarrett, 308-309 Patterson Bldg., Oklahoma City, Okla., rec. by C. H. Stocking and Claud Aikman.

No. 288. Fred W. Metzger, 230 West Carpenter St., Springfield, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 289. Walter H. Wyszynski, 8737 Commercial Ave., South Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 290. Henry Kendall Mulford, Jr., 212 Pembroke Ave., Wayne, Pa., rec. by Paul S. Pittenger and Robert P. Fischelis.

No. 291. Christian Schertz, 1341 Elysian Fields Ave., New Orleans, La., rec. by Robert F. Grace and Philip Asher.

No. 292. William Alexander Wallace, 166 Nissley St., Middletown, Pa., rec. by Charles H. LaWall and Ivor Griffith.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 26.

PHILADELPHIA, PA., July 3, 1916.

To the Members of the Council:

Motions No. 50 (*Petition to form Cuban Branch, A. Ph. A.*), *No.* 51 (*Invitation to Dr. S. Solis Cohen to Address Atlantic City Meeting of the A. Ph. A.*), *No.* 52 (*Additional Appropriation of* $100 *for Item No.* 4, *Miscellaneous,* 1916 *Budget*) and *No.* 53 (*Election of Members; Applications Nos.* 250 *to* 292, *inclusive*) *have each received a majority of affirmative votes.*

Francis E. Bibbins, Secretary, advises that at the June (1916) meeting of the Indianapolis Branch, A. Ph. A., Frank R. Eldred was elected as representative to the Council.

The number of members of the Council now total 41.

The Committee on Publication has received the following application from the J. B. Lippincott Company, publishers of "The Practice of Pharmacy," by Joseph P. Remington, for use of text of National Formulary, Fourth Edition, and, in accordance with the rule of the Council governing such applications, present the same to the Council with the recommendation that the application be granted under the conditions stated:

PHILADELPHIA, June 20, 1916.

Publication Committee of the American Pharmaceutical Association:

GENTLEMEN:

The new edition of "The Practice of Pharmacy" is now in preparation and we desire to use the text of the National Formulary, in whole or in part. We have heretofore been granted permission to use the text or part of the text; and, in the fifth edition of the work, the National Formulary was used in part only, without any charge.

In the forthcoming edition of the "Pharmacy," the author desires to incorporate parts of the National Formulary in the body of the book and through the text and in syllabi; in fact, to put it on the same status as the Pharmacopœia instead of printing the Formulary in the back of the book. This plan will

familiarize the student with the Formulary and in a way compel him to study it.

For and in consideration of the sum of one thousand dollars ($1000.00), payable to the American Pharmaceutical Association, we obligate ourselves to print upon the copyright page that permission has been granted by the American Pharmaceutical Association in the usual form.

Respectfully,
J. B. LIPPINCOTT COMPANY,
J. B. Lippincott, *President.*

P. S. It is understood, of course, if permission be granted to use the text of the National Formulary, Fourth Edition, in the Practice of Pharmacy, that, as in the case of the use of the text of the U. S. Pharmacopœia, Ninth Revision, at least ninety days shall elapse after the issue of the N.F. IV before the Practice of Pharmacy can be printed.

Do you favor granting the request of the J. B. Lippincott Company, as given above and recommended by the Committee on Publication? This will be regarded as *Motion No.* 54 (*Grant of Permission to Use N.F. IV text in "The Practice of Pharmacy," published by the J. B. Lippincott Company*).

Motion No. 55 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 293. Charles A. Greenstone, 3531 Market St., Philadelphia, Pa., rec. by J. W. Sturmer and J. W. England.

No. 294. Albert L. Ikan, 1135 Germantown Ave., Philadelphia, Pa., rec. by J. W. Sturmer and J. W. England.

No. 295. Arthur R. Maas, 1121 W. 51st Place, Los Angeles, Cal., rec. by C. W. Johnson and Edith Hindman.

No. 296. Frank Byron Fisk, 116 E. 30th St., Indianapolis, Ind., rec. by A. D. Thorburn and Francis E. Bibbins.

No. 297. Henry Oscar Wuensch, 515 Washington St., East Liverpool, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 298. Mary H. Spenzer, 2150 Central Ave., Cleveland, Ohio, rec. by Eugene R. Selzer and William C. Alpers.

No. 299. Louise Seline Suhr, 589 Spring St., West Hoboken, N. J., rec. by Daniel Alfred Neu and Fred A. Sieker.

No. 300. Nathan Alexander Simpson, 5529 Poplar St., Philadelphia, Pa., rec. by J. W. England and J. G. Roberts.

No. 301. John A. Weeks, 706 Hutchins Ave., Ballinger, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 302. Arow Leib Feller, 623—6thSt., New York, N. Y., rec. by Wm. C. Anderson and A. P. Lohness.

No. 303. Seth Parker Grandy, 76 S. Lake St., North East, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 304. John Robert West, Jr., Tarpon Springs, Fla., rec. by Geo. A. Jamieson and John A. Leverty.

No. 305. Frederick William Nish, 1022 Masonic Ave., San Francisco, Cal., rec. by Edward G. Binz and J. L. Lengfeld.

No. 306. Tony B. Thomas, 1323 E. 24th St., San Leandro, Cal., rec. by J. L. Lengfeld and Thos. R. Worth.

No. 307. John Clark Jopling, 310 N. Illinois St., Indianapolis, Ind., rec. by Francis A. Federer and Francis E. Bibbins.

No. 308. Edgar B. Carter, 810 E. 25th St., Indianapolis, Ind., rec. by Francis A. Federer and Francis E. Bibbins.

No. 309. William A. Konantz, 13 S. Linn St., Iowa City, Iowa, rec. by Wilber J. Teeters and Zada M. Cooper.

No. 310. Ray Emanuel Everly, Canton, Ill., rec. by Wilber J. Teeters and R. A. Kuever.

No. 311. Maurice Edward Dorsey, 304 S. Main St., Ottawa, Kansas, rec. by Paul L. Hess and H. M. Whelpley.

No. 312. Louis J. Meuser, 8 N. Sussex St., Dover, N. J., rec. by George M. Beringer and Charles Holzhauer.

No. 313. Clifford P. Thompson, 503 Main St., Springfield, Mass., rec. by E. H. LaPierre and L. G. Heinritz.

No. 314. Hugo H. Schaefer, 198 Jefferson Ave., Brooklyn, N. Y., rec. by H. M. Whelpley and Wm. B. Day.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

MEMORANDA.

The Resigned or Suspended. Under date of June 18, 1916, Treasurer H. M. Whelpley reports the following members who have resigned or been suspended for the non-payment of dues since May 18th:

Resigned.

Annis, H. P., Niagara Falls, N. Y.
Gill, L. C., Ancon, Panama.
Klein, E. F., Hot Springs, Arkansas.
Rose, E. W., St. Louis, Mo.
Groat, H. S., Renton, Wash.
Beck, J. W., Mt. Vernon, Texas.
Harris, A. O., Columbus, Ohio.
Schultz, W. H., Morgantown, W. Va.
Foote, C. E., Jackson, Mich.
Groff, J. M., Cynwyd, Pa.

Dropped for Non-payment of Dues.

Harrington, E. N., Columbus, Ohio.
Armstrong, T. S., Plainfield, N. J.
Bauman, C. R., Sterling, Col.
Campbell, Andrew, Pittsburgh, Pa.
Calhoun, W. M., Pittsburgh, Pa.
Fuson, H. L., Nashville, Tenn.
Freymark, G. F., Ambridge, Pa.
Haydock, S. G., Philadelphia, Pa.
Johnson, W. M., Gainesville, Fla.
Lienhart, A. H., Ft. Michie, N. Y.
MacDowell, Wm. F., Ellis Island, N. Y.
Mohler, D. C., Ada, Ohio.
Stutzlen, H. A., Rahway, N. J.
Schneider, Albert, San Francisco, Cal.
Schlosser, Peter, Louisville, Ky.
Pruden, F. E., Quanah, Texas.
Payne, Winfield S., Denver, Colo.
Parsons, G. L., Keokuk, Iowa.
Gofele, Felix, New York, N. Y.
Yaffa, D. B., Brooklyn, N. Y.
Varga, John, New York, N. Y.
Ulrich, R. J., Niagara Falls, N. Y.
Tierney, J. A., Glenville, W. Va.
Thome, E. R., Jackson, Mich.
Wicker, J. A., Roslindale, Mass.
Winslow, E. F., Bryn Mawr, Pa.
Paul, G. H., Ft. Columbia, Wash.
Reum, A. W., San Francisco, Cal.
Speer, C. C., St. Augustine, Fla.
Stahlhuth, E. H. W., Columbus, Ind.
Mayo, F. W., Memphis, Tenn.
Lakey, R. T., Detroit, Mich.
Hart, W. F., Newark, N. J.
Beasley, R. S., Hot Springs, Ark

LAWMAKING.

Whenever anything goes wrong in this country, whenever any evil develops in our body politic, we pass a law to stop it and let it go at that. In the New York State Legislature about three thousand bills are introduced at every session and altogether too many of them get into the statute books. Whenever a few of his constituents prepare a bill or ask for one, the obliging senator or assemblyman introduces it. This is true of Congress and of every state legislature. Nobody can read all these bills; even the committees cannot handle their allotments; so the result is a mass of half-baked statutes that have to be construed by the courts and enrich the lawyers who fight about what they mean.

It has come to such a pass that our lawmakers are glad to accept the help of anyone who will try to tell them what a bill is about. Several trade associations employ men to watch all legislations liable to affect the interests of their members, and when such lobbyists are capable and fair they wield great influence because they save the elected lawmakers from making mistakes. Organizations formed on patriotic lines are doing much to protect the people from the unwitting enactment of unwise laws. It should not be necessary for private organizations to do such work, but, if they do not, the conflict of laws will become worse than it is, and it is worse here than in any other country. Our lawmaking bodies have enacted more laws in one year than the British Parliament has passed in a century.

One of New York's brightest wits says that New York can be aroused to a riot or to a meeting of protest, on any proposition of any kind; whereas but a corporal's guard can be got together to create a new sentiment, an affirmative thought, or to convert the great body of the electorate to a common idea. That is true of the whole country. We "pass a law to stop it" but we pay little attention to fundamental principles and our lawmakers are no better than ourselves.

Since the European war broke out Americans have been advising the belligerents how to fight and how to stop the conflict; but at home these same men have failed to show us how to prepare for a little police duty in Mexico or how to keep out of Mexico. Europe must be laughing at us now if it has time to think about our affairs. Most European countries could teach us a lot about lawmaking.—*New York Commercial.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

WHAT SHALL BE DONE WITH CARBOLIC ACID PLANTS AFTER PEACE IS RESTORED?

Recent quotations on carbolic acid were as low as 60 cents a pound in drums. An industrial story of importance lies behind such quotations. Just prior to the outbreak of the war, the production of phenol in this country did not exceed ten tons per month, now it is stated to be upwards of one thousand tons. The enormous demand for picric acid has largely influenced this increased production.

To put it briefly, the declining price of phenol shows that the United States has not only been able, within less than two years, to become absolutely independent of foreign sources of supply, but has increased its output to such an extent that, despite the demand from munition makers, a large surplus production is available for the development and manufacture of other important chemicals hitherto imported from Europe. In other words, American industrial chemists, by their achievements in the manufacture of phenol, have taken a long essential step toward the building up of a vast new American chemical industry.

It is clearly evident that unless some other need than that for munitions is found for phenol, the manufacturers will be forced to discontinue its production on such an extended scale. There is then the opportunity of manufacturing salol, salicylic acid and other derivatives, and it is hoped that while engaged in the production of phenol, the chemists have not overlooked the future of this industry.

NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS URGE MOBILIZATION OF PRIVATE RESOURCES FOR MEDICAL SUPPLIES.

The Washington correspondent of the Paint, Oil and Drug Reporter says that copies of resolutions adopted by the National Association of Manufacturers of Medicinal Products, urging the mobilization of all private resources for the manufacture of medical supplies for the army and navy in case of war, have been received in Washington and are a part of the information coming in from various organizations of plans intended to facilitate the campaign of preparedness for the United States in case of war.

President Wilson received a copy of these resolutions which call attention to the necessity of not only providing trained soldiers, but also for perfect organization throughout all the industries of the country which can be of service to the nation in time of war. Mention is also made of the fact that the Government has paid no attention, so far as chemical and allied industries are concerned, to any feature except the furnishing of munitions of war. It is pointed out that it will be desirable to prepare for the prevention of disease in camps as well as the scientific treatment of the wounded if war shall come.

SHALL THERE BE TWO TYPES OF SCHOOLS OF PHARMACY?

The reprint which will follow deals with the present status of medical education and is reproduced for the interesting data contained therein. So the question propounded for this note is really a secondary thought. however, the suggestion may not be out of place notwithstanding that in most pharmacy schools advanced training is offered those students who desire it. The end-points of the thought are, trade-schools for preparaing young men and women for the conduct of a drug business and institutions for teaching the sciences, knowledge of which is essential for pharmaceutical and chemical manufacturing, research work in pharmacy and related lines. The suggestion will of course be accepted only as an undeveloped thought. The article referred to follows:

"G. Wilson, Baltimore (*Journal A. M. A.*, April 8, 1916), after noticing the raising of the standards within the past two decades and admitting that the American people are receiving vastly better medical attention than even 10 years ago, says already the cry for a doctor is coming from rural communities, and that they are asking for a good doctor, if possible, but in any case a doctor. While the report of the Carnegie Foundation on medical education in the United States has done an immense amount of good, he thinks that it has held largely the position of an advocate rather than of a judge, and has not considered sufficiently certain important factors. One of these is the difference in the morbidity rates in certain districts from those abroad and the bearing of the per capita wealth of the community with the ratio of physicians to population. His personal opinion as regards medical education has been that there is need in this country of two classes of medical schools, the one like the Johns Hopkins, in which the requirements can hardly be set too high, and the other and larger class for the training of general practitioners. *The first type of school should have a limited class of students, trained not only in clinical and laboratory medicine, but also in the methods of research.* They would become teachers, research workers and specialists, practitioners and consultants in the larger towns and cities. To require this of all men who desire to practice medicine would, Wilson thinks, undoubtedly raise the standard, but be no more satisfactory than to require that all locomotive engineers be graduates in mechanical engineering from an approved college. *The second class should demand a good education in the essentials, namely, the requirements demanded for admission to most colleges and including the essential fundamental scientific branches underlying medicine, such as chemistry, physics and biology.* He would not consider an ancient or modern language essential, though it would be a help. He questions the general accuracy of the statement of the Carnegie Foundation that graduates of the Johns Hopkins Medical School have settled to any extent in small communities. From a study of statistics he finds that they are extremely rare in those of Maryland, where the other school in Baltimore has 350 practitioners from its graduates. In 16 years, from 1897 to 1913, inclusive, the Johns Hopkins Medical School has graduated 965 men, of whom only four are practising medicine in rural Maryland. He gives tables supporting the statements, and trusts that the progress in regulating medical education will be done thoughtfully, and quotes the words of President Pritchett of the Carnegie Foundation: '*Let us not forget in our zeal for research that the principal function of the medical school is the training of medical practitioners.*'"

DAVID HOOPER, PRESIDENT OF BRITISH PHARMACEUTICAL CONFERENCE.

David Hooper, who was awarded the Hanbury Medal in 1907, has been elected president of the British Pharmaceutical Conference. President Hooper is an honorary member of the American Pharmaceutical Association, an honor that he much appreciates and which was bestowed on him in 1899, at the Put-in-Bay meeting. Most of his life was spent in India and he has chiefly been engaged in the chemical examination of drugs and economic products. Two years ago Mr. Hooper retired to take up work in connection with explosives under the Minister of Munitions. President Hooper visited in the United States a few years ago.

DAVID HOOPER
President of the British Pharmaceutical Conference

SIGNING THE INDENTURE OF A FOUR YEARS' APPRENTICESHIP TO PHARMACY.

In the accompanying picture one of our veteran members, N. H. Martin, of Newcastle-on-Tyne, who joined the Society in 1869, is seen signing the indenture of apprenticeship of his grandson exactly 53 years after he himself was indentured to John Solomon of Penryn, Cornwall. During the whole period in which he has practised Pharmacy,

Reading from left to right: Vivian J. Martin, the apprentice; Dr. W. Martin, father of the apprentice; N. H. Martin, pharmaceutical chemist, master; Percy Corder, the family solicitor.

his conviction has grown that the founders of the Pharmaceutical Society were right in establishing Pharmacy upon a scientific basis; and he has viewed with regret all developments which seemed to him to foster the purely commercial aspect at the expense of that ideal. He shows his faith in the future of scientific Pharmacy by accepting his grandson as an apprentice to himself in the hope that, through him, his own ideals for the professional and scientific aspects of a calling which he has loved and followed for over 50 years may be perpetuated.

This is reprinted from the Pharmaceutical Journal and Pharmacist, June 3, 1916. Mr. Martin joined the American Pharmaceutical Association in 1891, and has attended several of the annual meetings.

Mr. J. P. Gilmour, a leader of pharmaceutical opinion in Great Britain and former Chairman of the North British Branch of the Pharmaceutical Society, has been elected to succeed Mr. John Humphrey as editor of the Pharmaceutical Journal and Pharmacist. Editor Humphrey was compelled to resign on account of ill health.

Prof. Nestor Tirard, for the past twenty years secretary of the British Pharmacopœia Committee of the General Medical Council and medical editor of the British Pharmacopœia 1914, has been knighted.

OBITUARY

EDWARD WORTH MORSE.

Edward Worth Morse of Mt. Vernon, Ill., died June 20th. Death came suddenly while Mr. Morse was in his wagon and driving back to his home town. Apparently he passed away quietly, due of course to heart failure, as the local paper gives the news, but fails to define more definitely.

Mr. Morse joined the American Pharmaceutical Association in 1896 and was quite regular in his attendance at the annual conventions.

We have no record of his age or family connection, but the home paper gives his age at about seventy-five years, and that he came to Illinois from Massachusetts about forty years ago.

SOCIETIES AND COLLEGES

THE ATLANTIC CITY MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE REPORT OF THE COMMITTEE ON TRANSPORTATION.

The Committee on Transportation of the American Pharmaceutical Association announce the following rates and routes for members attending the sixty-fourth annual convention to be held at

ATLANTIC CITY, N. J., SEPTEMBER 5–9, 1916.

While no special rate for the Convention could be obtained, the summer tourists' rates will be in operation at date of meeting, and are as follows:

NEW YORK AND NEW ENGLAND TO ATLANTIC CITY.

Portland, Me., to Atlantic City and return *via* Boston	$21.82
Portland, Me., to Atlantic City and return *via* Worcester	22.10
Boston, Mass., to Atlantic City and return	16.50
Hartford, Conn., to Atlantic City and return	11.38
New Haven, Conn., to Atlantic City and return	9.54

Tickets are *via* P. R. R. from New York to Atlantic City and are good for 6 months from date of sale.

Summer excursion tickets are also issued to Philadelphia, Baltimore, Washington and other points on Pennsylvania lines good for 30 days with stop-over privileges; members using these tickets will obtain stop-over in Philadelphia and purchase excursion tickets ($2.75) to Atlantic City.

New York City *via* P. R. R. to Atlantic City and return, good for 6 months, $6.00. See above for excursion tickets to points beyond Atlantic City.

CLEVELAND TO ATLANTIC CITY.

Via Pennsylvania R. R. to Atlantic City *via* Philadelphia and return, $24.10; good to return up to October 31st, and permit to stop over at any station on Pennsylvania system. Pullman, Cleveland to Philadelphia, L. B. $2.50; U. B. $2.00; drawing room $9.00.

New York Central Lines, Atlantic City and return up to October 31st, $24.10; *via* Lake Shore to Buffalo; Lehigh Valley and Philadelphia and Reading to Philadelphia, A. C. R. R. to Atlantic City. Pullman, Buffalo to Philadelphia, L. B., $2.00; U. B., $1.60.

Baltimore and Ohio, Atlantic City and return up to October 31st, $23.60; *via* Pittsburgh, Harpers Ferry, Washington, Baltimore, Philadelphia, stop-overs permitted at any place on line. Pullman, Cleveland to Philadelphia, L. B., $2.50; U. B., $2.00.

Erie R. R., Atlantic City and return up to October 31st, $23.60; *via* Erie R. R. to Waverly, Lehigh Valley to Bethlehem, Philadelphia and Reading to Philadelphia, A. C. R. R. to Atlantic City, stop-overs at any place on line.

CHICAGO, CINCINNATI AND ST. LOUIS TO ATLANTIC CITY.

Via P. R. R. 30-day excursion tickets to go and return by same route are issued as follows:

Chicago to Atlantic City and return	$34.50
Chicago to New York and return	35.00
Cincinnati to Atlantic City and return	29.00
Cincinnati to New York and return	32.00
St. Louis to Atlantic City and return	37.00
St. Louis to New York and return	40.00

Members buying tickets to New York will obtain stop-over in Philadelphia and take side trip to Atlantic City as above.

Representatives of the Pennsylvania R. R. in all cities have been instructed to pay particular attention to the needs of our members.

NEW ORLEANS TO ATLANTIC CITY.

The Louisville and Nashville R. R. has been selected as the official route from Louisiana; tickets will be routed *via* L. & N. to Atlanta, Southern R. R. to Washington; Pennsylvania R. R. to Philadelphia, Atlantic City and New York.

New Orleans to Atlantic City *via* Philadelphia and return up to October 31st, $53.05; stop-overs allowed; going and returning same route.

New Orleans to New York and return same route up to October 31st, $55.70; members buying tickets to points beyond Philadelphia will obtain stop-over at that point and take side trip to Atlantic City.

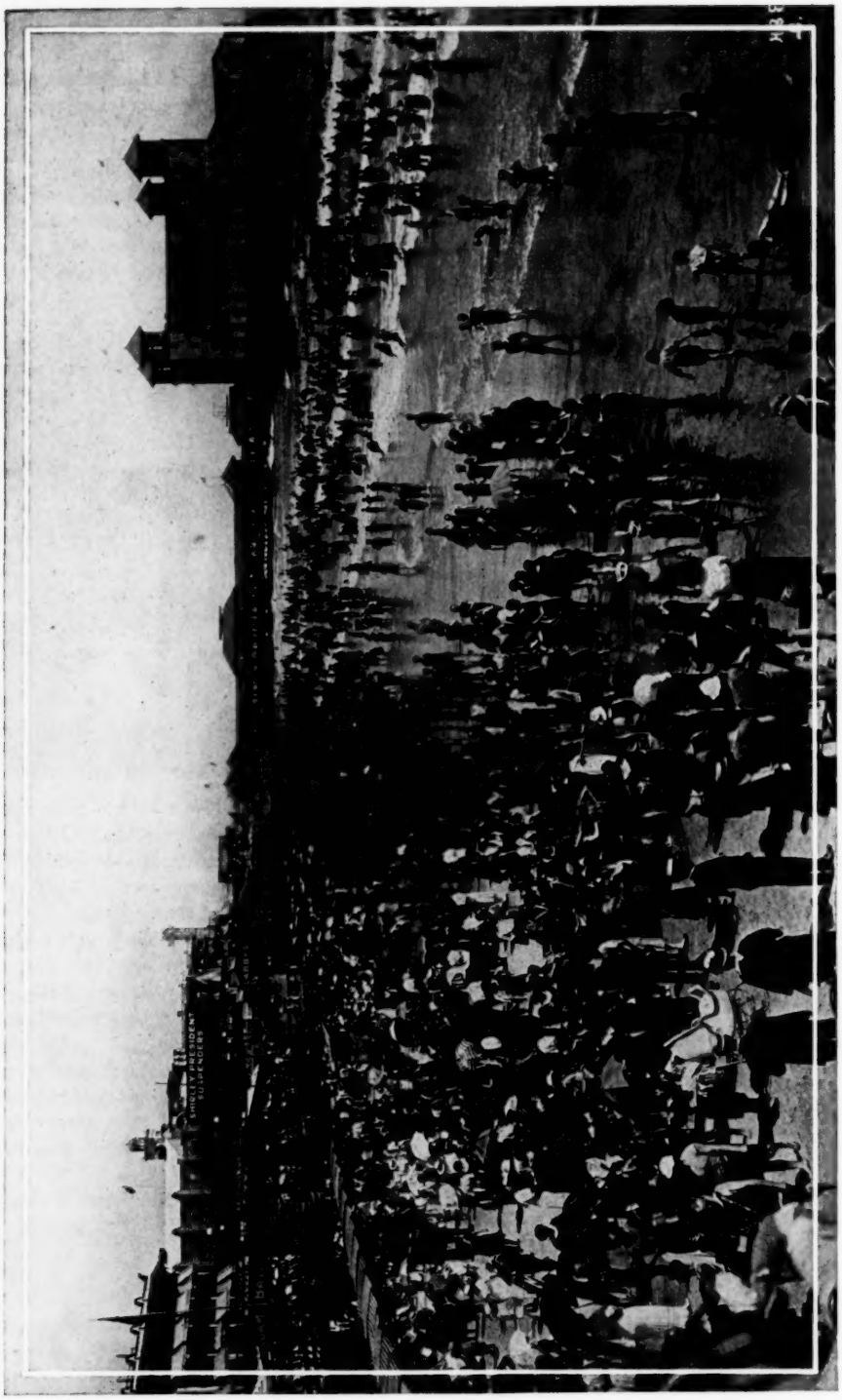
New Orleans to New York going direct route and return up to October 31st *via* Albany, $59.70; Buffalo, Niagara Falls, Detroit & Chicago, stop-overs permitted at all stations.

New Orleans to New York and return within 6 months, $75.00; stop-overs permitted at all stations. Going all rail; return from New York by Southern Pacific Steamship Co., berth and meals included.

NOTE.—All tickets by Southern R. R. between Atlanta and Washington will be honored *via* Asheville without additional charge.

ATLANTA TO ATLANTIC CITY AND NEW YORK.

Via Southern R. R. to Washington; P. R. R. to Atlantic City. Atlanta to Atlantic City and return up to October 31st, $36.05; going and returning same route. Atlanta to



THE 1916 MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN ATLANTIC CITY SEPTEMBER 5-9 INCLUSIVE. THE PICTURE PRESENTS A VIEW OF THE POPULAR RESORT

New York going and returning same route until September 30, $37.10.

Atlanta to New York and return within 60 days, $38.75; going *via* Washington and Philadelphia; returning from New York, by steamship lines to either Norfolk, Charleston or Savannah, thence rail.

Atlanta to New York, $39.50; going Southern R. R. to Washington, P. R. R. to New York, return within 60 days *via* Buffalo and Detroit or Buffalo and Cleveland, Cincinnati and Chattanooga.

All Southern R. R. tickets permit stop-overs at all points enroute on both going and returning trips within final limit of ticket.

Members buying tickets for points east of Philadelphia will obtain stop-over at that point and take in Atlantic City as a side trip at a cost of $2.75 for excursion tickets.

MINNEAPOLIS AND ST. PAUL.

All roads quote a summer excursion rate of $53.50 to Atlantic City same route going and returning within 30 days.

Pacific Coast Points: Special round trip tickets available for our Convention with stop-over privileges will be sold from California common points on August 10th, 24th, 25th, 28th and 29th; and from Northern Pacific Points daily up to September 30th. The going transmit limit on these tickets west of Chicago is 15 days from date of sale. Return limit, October 31st.

From California common points going and returning by direct routes to New York and Philadelphia $110.70—to Boston $112.70—to Portland, Maine, $115.70.

To come east by direct routes and return by Northern route *via* Portland, Oregon, $17.50 must be added to cost of these tickets.

Respectfully submitted,

THOS. F. MAIN, *Chairman.*

For Committee on Transportation.

June 23, 1916.

ATLANTIC CITY HOTEL RATES.

Chalfonte, headquarters, one person in room, $4.00; two in room, $8.00; two in room with bath, $10.00. Haddon Hall, one person in room, $4, $5, $6, $7; one person in room, with bath, $9.00; two in room, $7, $8, $9, $10, $12, $14; two in room, with bath, $9, and up. Hotel Strand, two persons in room, $8 to $10; two persons in room, with bath, $12. Marlborough-Blenheim, one person, $6 per day, and up. Royal Palace, one person in room, $3.50 and $4; two persons in room, $7 and $8; one person in room, with bath, $5, $6, $7; two in room, with bath, $9, $10, $11, $12. Hotel Traymore, one person in room, $7, $8, $10, $11, $12; European plan, one person in room, $3, $4, $5, $7, $8, $9; two in room, $10 to $16; European plan, two in room, $5 to $10. Hotel Bothwell, $3 and $3.50 per day, running water. The Mullica, $2 and $3 per day; European plan, $1 per day The Shoreham, $2 per day, two in room; $3 per day, with bath. The Grand Atlantic, $2.50 per day, two in room; $3 per day, single rooms. The Wiltshire, $3.50, $4, $5, $6, per day, single rooms; $2.50 to $5, two in room. The Seaside, $3.50 and $4, two in room.

Prices are American plan unless otherwise indicated.

AMERICAN MEDICAL ASSOCIATION.

For the first time the presidency of the American Medical Association has been bestowed on the brother of a former president. So well known is the name of Mayo that

CHARLES HORACE MAYO
President-elect of American Medical Association

it may seem unnecessary to present a biography of the President-Elect. The work that the Mayo brothers have done, the institution they have established at Rochester, Minn., are known throughout the country. Dr.

Charles Horace Mayo was born in Rochester, Minn., July 19, 1865, the son of the late Dr. William Worrall Mayo and Louise Abigail Wright Mayo. He graduated from the Chicago Medical College in 1888, and at once began practice with his father and his elder brother, Dr. William J. Mayo, who was President of the American Medical Association in 1906. At that time St. Mary's Hospital in Rochester—which was the start of what has become known as the Mayo Clinic—had thirty patients. He was president of the Western Surgical Association in 1904; of the Minnesota State Medical Association in 1905; chairman of the Section on Surgery of the American Medical Association in 1907, and of the Surgical Section of the International Congress on Tuberculosis in 1908. The honorary degree of M.A. was conferred on him at the Northwestern University in 1902, and the degree of LL.D. at the University of Maryland in 1909.—*Jour. A.M.A.*

THE AMERICAN ASSOCIATION OF PHARMACEUTICAL CHEMISTS.

The ninth annual meeting of the American Association of Pharmaceutical Chemists was held at Cedar Rapids, Iowa, May 30th to June 1st, inclusive.

The members and visiting delegates were guests of the Standard Chemical Company of Des Moines on May 29th and were royally entertained by the Standard Chemical Company and Chamber of Commerce of Des Moines.

The meetings, which opened on Tuesday, May 30th, with an address by Mayor Louis Roth of Cedar Rapids, were largely attended and the consensus of opinion was that the meeting was the best and most valuable ever held.

The following delegates from other associations were present: American Pharmaceutical Association: Prof. W. J. Teeters, University of Iowa, Iowa City, Iowa. American Surgical Trade Credit Association: Mr. F. B. Hovey, Chicago, Ill. American Veterinary Association: Dr. D. M. Campbell, editor *American Journal Veterinary Medicine*, Chicago. National Association Manufacturers of Medicinal Products: Mr. John F. Queeny, Monsanto Chemical Works, St. Louis, Missouri. National Wholesale Druggists Association: Mr. Franklin Junkerman, Churchill Drug Co., Cedar Rapids, Iowa.

The annual banquet was held on Tuesday evening, May 30th, with the visiting delegates and Hon. Louis Roth, mayor of the city of Cedar Rapids; Hon. John T. Hamilton, president Merchants' National Bank; Rev. Father R. J. Campbell, rector of Grace Episcopal Church; Judge Chas. B. Robbins, president Cedar Rapids Commercial Club and Judge of Superior Court; Mr. John Wunderlich, secretary, Cedar Rapids Commercial Club, as guests. Mr. B. L. Maltbie acted as toastmaster.

Many valuable reports and papers were presented, particular interest being centred on the reports of the Committee on Standardization, the Committee on Revision and Discontinuance of Non-Scientific Formulæ, the Committee on Costs and Overheads, and the report of a special committee on Prior Rights and Trade Mark Specialties, by Mr. George C. Hall.

All of the officers were re-elected as follows: President, B. L. Maltbie, Maltbie Chemical Co., Newark, N. J.; First vice-president, E. S. Holt, Howard-Holt Co., Cedar Rapids; second vice-president, J. W. Haynie, Columbus Pharmacal Co., Columbus, Ohio; secretary-treasurer, Dr. C. H. Searle, G. D. Searle & Co., Chicago, Ill.

The three new directors chosen to serve for a term of three years were: R. M. Cain of the Swan-Myers Co., Indianapolis, Indiana; O. F. Schmid, O. F. Schmid Chemical Co., Jackson, Michigan; and D. H. Lohman, Lafayette Pharmacal Company, Lafayette, Indiana.

It was voted to hold the next meeting at Atlantic City.

Too much credit cannot be given the Entertainment Committee, Mr. E. S. Holt of the Howard-Holt Company and Mr. G. D. Ellyson of the Standard Chemical Company, for the entertainment provided for the members and guests. The Association is also under obligations to the Chamber of Commerce of Des Moines and the Commercial Club of Cedar Rapids for the many courtesies extended.

ASSOCIATED ADVERTISING CLUBS OF THE WORLD MEET IN PHILADELPHIA.

Nearly 10,000 members and visitors were in attendance at the convention of the Associated Advertising Clubs of the World in

Philadelphia during the last week of June. President Wilson came over from Washington on one afternoon and addressed the members.

The key-note of the meeting was work during the hours designated and play just as hard when time was called. The exhibitions and parades were grand and the entertainments fine.

President Houston in his address referred to the higher ideals of the Associated Advertising Clubs and the corrective methods it has used to root out abuses in advertising, and place it on a higher and more efficient plane. Mr. Houston, reviewing the work of the associated clubs, called attention to their coöperation with the federal government, Harvard University and other institutions to perfect and regulate advertising and then declared, "I call this a fundamental business."

St. Louis will entertain the Association next year.

THE CHICAGO VETERAN DRUGGISTS' ASSOCIATION CELEBRATES BIRTHDAYS OF HONORED MEMBERS.

The Chicago Veteran Druggists' Association, on June 9, celebrated an event that occurred seventy years prior to June 6, 1916, namely the natal day of Wilhelm Bodemann. The festivities were held at the Germania Club, where a large attendance assembled to enjoy the evening with one of the best loved and most enthusiastic members of the Association. Many, from other sections of the country, regretting their enforced absence and conveying their sincere wishes and congratulations, also spoke their high regard for the celebrant.

A letter from President William C. Alpers of the American Pharmaceutical Association is especially interesting, for in it he sketched the character of the honored guest; firm, outspoken, with a conviction and a will, a true and tried friend.

Members of the *New York Deutscher Apotheker Verein* sent a beautiful loving cup and with it conveyed expressions of friendship to one of their honored members.

Wilhelm Bodemann is too well known for us to attempt a sketch, and though he has lived seventy useful years, time has dealt well with him and the wishes for many more years are not mere hopes, but reasonable expectations.

Jamieson Day also was celebrated at the Germania Club, June 21. Honorary President O. F. Fuller presented a paper paying tribute to the man in whose honor the day has been set apart as a fiesta, Dr. T. N. Jamieson, and to his good wife who shares with him the kindest feeling and fullest love for the organization. Fitting contributions to the program were also made by President Theophilus Schmid, Secretary Wilhelm Bodemann, and C. W. Grassley, Stillman Jamieson responded for his father, and a telegram from Dr. Jamieson was read. Mr. Bodemann also read the very interesting autobiography of Dr. J. H. Beal. Telegrams of greeting were received from Charles Matthews, Charles Fuller and Hugh Craig, who were attending conventions.

INSECTICIDE AND DISINFECTANT MANUFACTURERS' ASSOCIATION.

The fifth open meeting of the Insecticide and Disinfectant Manufacturers' Association was held at the Planters' Hotel, St. Louis, on June 19–20.

Probably the most important feature of the meeting was the discussion of the advisability of having the counsel of the Association try out some test case in order that the limitation of the insecticide act might be judicially ascertained.

After an extended consideration of the matter the following resolution was adopted:

Resolved, That the Board of Governors be requested to select some cases of alleged violation of the insecticide act to be defended by counsel of the Association at the expense of the Association for the purpose of obtaining a judicial determination of the limitations and extent of the insecticide act of 1910 and of the board charged with its administration.

FLAVORING EXTRACT MANUFACTURERS OF UNITED STATES.

The Association of Flavoring Extract Manufacturers of the United States met in Atlantic City June 29.

S. F. Irwin, of Philadelphia, urged associates to give serious consideration to the reported growing use of vanilla extract and other products containing large percentages of alcohol, as substitutes for proscribed liquors in local option territory and prohibition States.

The Philadelphian said that if the use of extracts, easily obtained at groceries, should become common among inveterate users of alcohol deprived of their tipple by anti-liquor laws, the flavoring extract manufacturers might have to face State legislation along lines very detrimental to their interests. Many of the extracts now on the market contain from 36 to 40 percent of alcohol. He spoke in answer to the question, "What's the matter with the extract business?"

Dr. Edward Kremers and Dr. W. O. Richtman, University of Wisconsin, described benefits for the trade to follow research on citrus oils. The color situation was discussed by E. G. Kohnstamm.

The convention wired to the Ways and Means Committee of Congress a resolution urging the repeal of the stamp tax on extracts. It was asserted that with the steadily increasing cost of raw materials the Government's exaction, which cannot, because of market conditions, be transferred to the consumer, represents from one-third to one-half of the net profit upon many sales.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The Committee on Rates and Routes of the National Wholesale Druggists' Association has sent out a folder descriptive of the train and car arrangements made for the transportation of delegates to the annual convention to be held at Baltimore, October 2–6. Special cars will be run from Chicago, St. Louis, Detroit, Toledo, New Orleans, Atlanta, and requests for sleeping car accommodations should be made to the following:

Chicago.—Chas. E. Matthews, 169 N. Franklin Street, Chicago.

St. Louis.—Fred W. Sultan, 112 N. Second Street, St. Louis.

Detroit-Toledo.—Harry Skillman, Detroit.

New Orleans.—Lucien E. Lyons, New Orleans.

Atlanta.—S. C. Dobbs, Atlanta.

An unusual number of hotel reservations have already been made, but further applications will be necessary on the part of those members not already provided for, and should be sent to W. A. Sailer, care of Sharp & Dohme, Baltimore.

The Entertainment Committee announces that on Friday, October 6, a special trip to Annapolis by steamer has been arranged.

THE NATIONAL ASSOCIATION OF DRUG CLERKS.

The Annual Convention of the National Association of Drug Clerks was held in Chicago, June 1 to 3, and was attended by over 200 delegates. Secretary Mandabach's report was replete with the activities of the Association during the past year, and contained many valuable suggestions for continued and further activity.

The entertainment program included a complimentary luncheon given by John T. Milliken Company, of St. Louis, The Richardson Corporation, of Rochester, N. Y., and the Pennsylvania Chocolate Company, of Pittsburgh. Trips were also made through Armour and Company's plant, and to Riverview Amusement Park. A banquet closed the meeting, at which there were a number of interesting addresses.

The following officers were elected for the ensuing year: President, P. F. Coffey, Chicago; vice-presidents, Henry J. Steining, Lafayette, Ind.; Frederick J. Killabee, St. Louis, Mo., and J. A. Orr, Philadelphia; secretary-treasurer, P. A. Mandabach, Chicago; national organizer, J. F. Miser; editor-director of publicity, Paul J. Mandabach, Chicago; counsellor-at-law, Raymond A. Cavanaugh, Chicago; consulting attorneys, Cline C. Brosius and Alexander C. Mabee, with corresponding attorneys in every state in the Union.

DELAWARE PHARMACEUTICAL ASSOCIATION.

The annual convention of the Delaware Pharmaceutical Association was held in Wilmington.

The subjects that held the attention of the meeting were concerned with the present condition of the drug market and the future possibilities.

Dr. Adolph W. Miller, of Philadelphia, delivered an address on "The Requirements for Entrance to Colleges of Pharmacy."

The officers elected for the ensuing year are: President, R. W. Chambers, Lewes; first vice-president, James T. Challenger, New Castle; second vice-president, Walter R. Keyes, Clayton; third vice-president, William Longendyke, Seaford; secretary, Mrs. Nora V. Brendle, Wilmington; treasurer, Oscar C. Draper, Wilmington.

GEORGIA PHARMACEUTICAL ASSOCIATION.

The Georgia Pharmaceutical Association, at its meeting in Atlanta, elected Henry Bell, of Albany, president. The other officers are I. A. Solomon, of Savannah, and L. S. Brigham, of Columbus, vice-presidents; secretary, T. A. Cheatham, of Macon; and treasurer, T. C. Marshall, of Atlanta.

W. S. Elkin was unanimously endorsed for reappointment as a member of the Georgia Board of Pharmacy.

The Association went on record in favor of a new State anti-narcotic law which would also make provisions that no paregoric be sold except in the drug store. It seems that this preparation is sold quite extensively by other stores and evidently creating a paregoric habit.

The next meeting of the Association will be held in Macon.

ILLINOIS PHARMACEUTICAL ASSOCIATION.

The two big features which stand out prominently in the meeting of the Illinois Pharmaceutical Association are the accession of nearly four hundred new members and the establishment of a monthly publication. Addresses by leaders in pharmacy, such as Harry B. Mason, James H. Beal and Thomas H. Potts, contributed greatly to the success of the meeting. The inauguration of a "drug show" and the adoption of a new policy regarding entertainments, coupled with the fact that the second consecutive meeting in the state capital was a distinct success both in attendance and interest, were scarcely of secondary importance.

President Riemenschneider's excellent address dealt with the important questions of membership, legislation, price maintenance, war taxes, the coupon and trading stamp evils, coöperation with the American Pharmaceutical Association and National Association Retail Druggists and especially the need for greater publicity for the work of the organization.

Secretary Day's report included the nomination of 362 new members who were immediately elected to full membership. Over half of these new members were from Chicago. Credit was given to the membership committees of the two associations for their good work. Mention was made especially of F. J. Butler of the State Board of Pharmacy who had brought in 75 new members, F. J. Dubsky, of Chicago, who came second with 64 and, of the travellers, Oscar Huyck with 17, W. B. Stout 11, and Allan Stuart 12. The members of the committee were thanked by the Association for their successful efforts. The Beal prize membership to the three highest candidates in the state examinations during the year were awarded to Benjamin Lowis, of Chicago, Frank W. Graham, of Carlinville, and W. M. Saylor, of State Line, Ind.

The Committee on Trade Interests discussed price protection, the advance in drug costs since the European war began, the war taxes and druggists' profits; it endorsed the Harrison Narcotic Law as a blessing to the drug trade, advocated federal supervision of the liquor traffic and made a plea for shorter hours and Sunday closing.

The Committee on President's Address in its report endorsed the recommendations of the president as follows:

1. Electing T. H. Patterson, ex-president and ex-secretary of the Association, but now retired from active business, to honorary membership.

2. Absolutely opposing schedule B of the Emergency Revenue Law.

3. Protesting against unfair regulations concerning mailing of poisons.

4. Strongly advocating against coupons and trading stamps.

5. Insisting on the maintenance of the present law which prohibits any one but a registered pharmacist from selling narcotics.

6. Favoring the 2-4-8 plan for prices of proprietaries.

The Committee on Resolutions reported resolutions as follows, which were unanimously adopted:

1. Endorsing the graduation prerequisite and instructing the legislative committee to formulate a prerequisite bill and work for its passage at the coming session of the legislature.

2. Favoring a tax on coupons and trading stamps.

3. Inviting the American Pharmaceutical Association to meet in Chicago in 1918, which will be 25 years since its last Chicago meeting.

4. Urging Secretary of State Lansing to endeavor to bring about an understanding with the various belligerent governments

whereby the existing shortage of important medicinal substances may be relieved.

The Special Committee on Publication, appointed by the president in accord with the instructions of the Executive Committee and consisting of Messrs. I. M. Light, L. P. Larsen and J. C. Wheatcroft, recommended the publication of a four-page supplement attached to a regular issue of C.R.D.A. News and to appear once a month and be sent to every member of the Illinois Pharmaceutical Association without charge. The Chicago Retail Druggists' Association is to be paid four hundred dollars a year for the whole expense of this publication. It was further recommended that a publication committee be appointed to furnish items of news and of general interest to the retail drug trade of the state. The publication is to start not later than July 1, 1916.

Dr. J. H. Beal reviewed anti-narcotic Legislation and opposed the repeal of Section 6 of the Harrison Law. He explained the N.A.R.D. Draft for a State Narcotic Law and pointed out that this draft was expected to be altered or amended in minor details to suit conditions in the various states. The speaker would not, however, disturb state laws governing the sale of narcotics where these are now fairly satisfactory.

President Mrazek of the Board of Pharmacy presented his report, which showed a net increase of 105 registered pharmacists and 46 registered assistant pharmacists during the year. The total registration was 5917 registered pharmacists (215 new), 1091 registered assistant pharmacists (185 new), and 759 new apprentices. Eleven hundred and seventy-six persons were examined for pharmacist's or assistant pharmacist's certificates, 30 percent of the R.P.'s and 39 percent of the A.P.'s having been sucessful. Forty-five persons were registered as pharmacists by reciprocity. He called attention to the activities of the Board in enforcing that section of the pharmacy law which prohibits any person other than a registered pharmacist from selling any poison except insecticides in original packages or any medicine containing the interdicted narcotics in any quantity. The Board has been upheld in its views by the decision of the Attorney-General, and retail grocers and general dealers had been advised accordingly.

Upon motion of C. H. Avery the Association voted a contribution of fifty dollars to support the work of the National Association of Boards of Pharmacy.

Mr. Harry B. Mason, in an address on "Modern Merchandising," presented a series of practical business suggestions and observations in manner that left no doubt of their accuracy and importance. He discussed the selection of a location, the training and management of clerks, the development of an "*esprit de corps*," courses in salesmanship, the value of courtesy, accommodations, and especially *Service*, the slogan of modern business, and the importance of quality.

The Secretary read a letter from Mr. J. F. Hancock, chairman of the Procter Memorial Committee of the A.Ph.A., asking the I.Ph.A. to help in impressing upon Congress the importance of providing a site and an appropriation for a base for the monument of Wm. Procter, Jr., the funds for this monument having been raised by popular subscription among the druggists of the United States. The secretary was instructed to address the congressman and senators from Illinois accordingly.

Secretary Thomas H. Potts of the N.A.R.D. addressed the Association on "Price Protection," but which also dealt with other efforts that his association is making for the benefit of retail druggists.

The committee on prize essays awarded first prize to Harry G. Walter, of McLean, for his essay on "The Little Things."

Upon motion the following were recommended to Governor Dunne for the selection of one to fill the vacancy occurring on the Board of Pharmacy at the end of this year: Stuart Broadwell, Springfield; Byron Armstrong, Jacksonville; C. F. Greer, Centralia; F. O. Schmidt, Chicago, and John J. Chwatal, Chicago. And the following were recommended to President James for the appointment of one on the Advisory Board of the University of Illinois: Albert Zimmermann, Peoria; W. E. Claypool, Springfield; Andrew Scherer, Chicago.

Upon motion the Association re-affiliated with the N.A.R.D. and appropriated $25 for the annual contribution.

After some discussion June 19, 20, 21 and 22, 1917, were selected as the dates for the thirty-eighth annual convention, which will be held in Springfield, in accord with the resolution adopted a year ago to hold five consecutive meetings in the state capital.

The following officers were unanimously

elected: President, W. S. Denton, Beardstown; first vice-president, Byron Armstrong, Jacksonville; second vice-president, J. Robert Phillips, Springfield; third vice-president, Frank J. Dubsky, Chicago; secretary, W. B. Day, Chicago; treasurer, Chris. Garver, Bloomington.

IOWA PHARMACEUTICAL ASSOCIATION.

The Iowa Pharmaceutical Association met in thirty-seventh annual convention at the home of the State University, June 20–22. During the year 202 members were added, making a total at present time of 1908. Sixteen hundred stores are represented and clerks are enrolled in the special membership for clerks. Each county has a member who represents it in the legislative committee, and who looks after the interest of that particular locality.

Prof. R. A. Kuever, chairman of the committee on Progress in Pharmacy, in his report, called attention to what is being accomplished along educational lines; to the adoption of military training in one-fourth of the Colleges of Pharmacy in the U. S. beginning September, 1916; to the addition during the year of several states to the list of those having college prerequisite requirements, this being done either by legislation or by board ruling; and, lastly, to the very great increase in the pharmaceutical products manufactured in this country.

Among the visitors present were Prof. E. L. Newcomb, of Minnesota, who spoke of the work carried on by the Minnesota Association, and Hugh Craig, editor of *N.A.R.D. Journal*, who ably handled the subject of legislation. Dean W. J. Teeters reported on the meeting of the American Pharmaceutical Association in San Francisco and also presented a resolution which was unanimously adopted for a new building to be used by the Pharmacy Department.

The afternoons of the convention were given over to lectures. Among the contributors to this part of the program were: Prof. C. H. Weller, on advertising; L. D. Fisher, of Hannibal, Mo., on drug store arrangements; Prof. R. B. Wylie, on cameras and photography; O. E. Klingaman, on fighting mail-order concerns; C F. Kurtz, on salesmanship, and J. J. Hinman on the purity of water and its analysis.

Besides these special lectures on Wednesday morning preceding the regular business session, Dr. C. S. Chase, professor of materia medica, gave a pharmacological demonstration illustrating the action of the more important cardiac drugs.

Des Moines was selected for the mid-winter session and Dubuque was named for next annual meeting place. The following were elected officers: President, J. A. Todd, Sioux City; first vice-president, T. M. Watts, Holstein; second vice-president, H. C. Hubbard, Humboldt; third vice-president, R. W. Harvey, Missouri Valley; treasurer (re-elected), J. M. Lindly, Winfield; secretary (re-elected), Al. Falkenhainer, Algona. Member of the Executive Committee for three years, the retiring president, J. R. Sutter, of Burlington.

KANSAS PHARMACEUTICAL ASSOCIATION.

The Kansas Pharmaceutical Association convened in annual session May 16–18 in the "Gate City of Kansas," Kansas City. Over 100 names were added to the membership roll, and this brings that up to about 800 members.

The officers elected were: President, J. W. Giesburg, Kansas City; first vice-president, Walter S. Henrion, Wichita; second vice-president, B. C. Culp, DeSoto; secretary, D. V. Riesen, Marysville; local secretary, Geo. Stansfield, Topeka; treasurer, John Schmitter, Gypsum. The next meeting will be in Topeka.

Among the important measures that were passed was the reduction of the Life Membership fee from $50.00 to $25.00. The Legislative Committee asked for a solicitor to visit the druggists who were not members of the Association with the view of enrolling them and also to collect the $3.00 fee to this committee. Three members—clerks—were appointed to meet with the N.A.D.C. when that body is in annual session.

Mr. Thos. H. Potts, secretary of the National Association of Retail Druggists, honored the Association with his presence and read a paper on "Price Maintenance and the Harrison Anti-Narcotic Law." Mr. John S. Chism, Wichita, was a delegate to the American Pharmaceutical Association and presented a report of that Association, which was full of the best for the druggist.

In his message to the druggists, President

Bangs scored in no uncertain terms the American Medical Association for trying to usurp not only the ethical but also the business part of the druggist's profession.

Two prizes were offered for window displays, and these were won by Messrs. Joseph Paradowski and G. Q. Lake, of Kansas City.

Among the features of the entertainment program was the banquet presided over by Henry Faxon, the river excursion provided by Parke, Davis & Co., and the luncheon by Loose-Wiles Company.

KENTUCKY PHARMACEUTICAL ASSOCIATION.

The Kentucky Pharmaceutical Association held its thirty-ninth annual meeting at Olympia Springs with a very good attendance.

Steps were taken looking forward to having a larger membership of the Association and a special committee was appointed to take this matter in hand. Quite a large number of interesting papers were read, and the Stephens price-maintenance bill endorsed.

G. H. Worland, of Brandenberg, was elected president, and the other officers are W. B. Montgomery, of Caneyville, J. F. Wilson, of Mayfield, and E. H. Meyer, Louisville, vice-presidents; J. W. Gale was re-elected secretary, and also Vernon Driskell as treasurer. R. J. Frick, of Louisville, was elected local secretary.

The 1917 meeting will be held in Louisville, June 19.

Prof. C. Lewis Diehl, emeritus professor at the Louisville College of Pharmacy, and his daughter Eleanor were in attendance at the meeting.

MICHIGAN PHARMACEUTICAL ASSOCIATION.

The thirty-fourth annual meeting of the Michigan Pharmaceutical Association was held in Detroit, June 20–22, with an attendance of nearly five hundred. Business methods for the retail druggist were given prominent place among the discussions and papers of the meeting.

The convention was addressed by C. M. Woodruff, secretary of the National Association of Manufacturers of Medicinal Products, who, among other things, gave an outline of the plans and purposes of his organization.

W. H. Marsh, of the Burroughs Adding Machine Company, gave an interesting talk on "The Value of System in Business," with particular reference to the drug business. He took the position that every business, large or small, should be conducted along systematic lines so that each department will show a legitimate profit. Mr. Marsh illustrated his talk with charts prepared for the occasion.

Wednesday evening the feature was the address by Thomas H. Potts, who told of what is being done nationally in a legislative way for pharmacy, placing especial emphasis on the various provisions of the Harrison anti-narcotic law and what was being accomplished with regard to the enactment of the Stephens-Ashurst bill. L. A. Seltzer, of Detroit, presented a valuable and interesting paper on "Present Methods of Pharmaceutical Registration." George H. Grommet, of Detroit, presented a splendid paper on "The Propaganda and the Pharmacist." "The Wealth of Clerks" was well handled by E. J. Parr, of Big Rapids, he outlining what in his opinion constituted good service by clerks.

Charles F. Mann gave a detailed report of the handling of the Prescott Memorial Fund, up to date. Every dollar loaned out of the fund to deserving students to assist them in completing their studies has been returned.

The following were elected officers for the ensuing year: President, C. H. Jongejan, of Grand Rapids (re-elected); vice-presidents, A. B. Robertson, of Lansing, and J. B. Hallecke, of Hillsdale; treasurer, J. G. Stiketee, of Grand Rapids (re-elected); secretary, F. J. Wheaton, of Jackson. M. H. Goodale, of Battle Creek, and C. A. Weaver, of Detroit, were elected members of the executive committee.

MISSISSIPPI PHARMACEUTICAL ASSOCIATION.

The Mississippi Pharmaceutical Association at its fourteenth annual meeting, which was held at Meridian, June 13, elected G. C. Kendell, of Meridian, president. The vice-presidents are Charles Waites, of Clarksdale, and J. C. Holt, of Meridian.

Miss Flora Scarborough, of Laurel, was re-elected secretary-treasurer.

The members of the executive committee are Prof. H. M. Faser, J. C. McGee and J. W. McCorkle.

A tri-state meeting will be held in 1917 at Memphis, Tenn. The participants are the Mississippi, Tennessee and Arkansas Associations.

The 1918 meeting of the Mississippi Association will be held at Gulfport.

MISSOURI PHARMACEUTICAL ASSOCIATION.

The thirty-eighth annual meeting of the Missouri Pharmaceutical Association was convened at Excelsior Springs, June 13.

Among the subjects that received considerable consideration was the condition of the American drug market, with a view of bringing out thoughts and suggestions that would make American pharmacy less dependable on foreign supplies.

Among the visitors at the Missouri meeting were Thomas H. Potts, secretary of the National Association of Retail Druggists, and H. C. Christensen, secretary of the National Association of Boards of Pharmacy, both of whom addressed the convention. The subject of the former embodied a comprehensive review of legislation concerned with the drug trade.

A. M. Howard, of Excelsior Springs, was elected president, and the other officers are H. D. Llewellyn, of Mexico, and F. A. Long, of St. Joseph, vice-presidents; Dr. H. M. Whelpley and William Mittelbach were re-elected to their positions, namely, of secretary and treasurer, respectively.

The Missouri Pharmaceutical Travellers' Association elected the following officers: President, W. H. Raming, of Kansas City; vice-presidents, C. L. Chittenden, of St. Louis, C. A. Sisler, of St. Louis, and W. J. Walsh, of St. Louis; secretary, W. R. Adelsperger, of Kansas City; assistant secretary, Roy Walker, of Kansas City; treasurer, Daniel Liddy, of Kansas City; and sergeant-at-arms, J. T. Goldsmith, of St. Louis.

The Associations will again meet in Excelsior Springs next year.

NEBRASKA PHARMACEUTICAL ASSOCIATION.

The thirty-fifth annual convention of the Nebraska Pharmaceutical Association was held at Hastings, June 13–15.

It has been the custom for a number of years to invite a speaker from another association to address the annual convention. This year Professor C. B. Jordan was the guest of the Association and spoke on Pharmacy, Professional or Commercial—Which?

Prof. J. E. O'Brien of Creighton College presented a paper with a demonstration on the product of coal tar derivatives.

A. V. Pease, Fairbury; D. J. Fink, Holdrege; Fred Picard, Geneva, were named delegates to the National Association of Retail Druggists.

N. P. Hansen and R. A. Lyman, of Lincoln, and I. Curtis Arledge, of Omaha, were elected delegates to the American Pharmaceutical Association.

The following officers were elected for the ensuing year: J. E. O'Brien, Omaha, president, and the following five vice-presidents in the order named: Niels Mikkelsen, Kenesaw; J. W. Fetter, Maxwell; Wm. Milder, Omaha; Fred. P. Picard, Geneva; Elmer Hansen, Lincoln. J. G. McBride, University Place, secretary, and D. D. Adams, Nehawka, treasurer, were re-elected.

NEW JERSEY PHARMACEUTICAL ASSOCIATION.

The forty-sixth annual convention of the New Jersey State Association was held at the New Hollywood Hotel, Long Branch. The meeting was well attended and the membership increased by more than 100. President Charles J. McCloskey complimented the membership committee for its activity, and in his address reviewed the drug market and made a strong plea for raising the standards of pharmacy.

Quite a number of papers were presented and legislative matters thoroughly discussed.

Arrangements were made whereby the Association will participate in the entertainment program to be provided for members of the American Pharmaceutical Association. Mr. Charles Holzhauer, of Newark, is local secretary.

Frank C. Stutzlen, of Elizabeth, who completed his eighteenth year as secretary of the Association, declined re-election.

The following is a list of the officers for the ensuing year: Garret Byrnes, of Maplewood, president; Daniel H. Hills, of Spring Lake, first vice-president; Adolph S. Marquier, of Newark, secretary and vice-president; Jeannot Hostman, of Hoboken, secretary; Edgar R. Sparks, of Burlington, treasurer; Chas. W. Holzhauer, of Jersey City, John G. Black, of

Jersey City, Harry W. Crooks, of Newark, Edward N. Stein, of Montclair, trustees; Stephen D. Woolley, of Ocean Grove, John C. Gallagher, of Jersey City, Thomas S. Armstrong, of Plainfield, Davis Strauss, of Newark, George M. Beringer, of Camden, legislative committee.

COLLEGE GRADUATION REQUIRED BY NEW JERSEY STATE BOARD OF PHARMACY.

One of the most important features accomplished at the meeting of the New Jersey Pharmaceutical Association was the move for higher education in pharmacy.

The New Jersey State Board of Pharmacy has ruled that from July 1, 1917, the candidate must be a graduate from an approved college of pharmacy besides having at least four years of practical experience.

By an approved college of pharmacy presumably is meant a properly equipped institution, which gives a full day course to students having a preliminary education of at least one year of high school.

The New Jersey Board of Pharmacy is to be complimented upon this action, which brings pharmaceutical education in New Jersey at par with that of its neighboring states.

NEW YORK PHARMACEUTICAL ASSOCIATION.

The address of President A. S. Wardle delivered at the annual meeting of the New York State Pharmaceutical Association, held at Richfield Springs, was largely devoted to a review of the work of the Association during the past year. He dwelt at length upon the condition of the drug market. Chain store consolidation, publicity bureaus and propaganda work also came in for attention. He congratulated the committee on membership for their successful work, and presented the slogan which was afterward adopted by the association, of "2500 members by June, 1917."

Affiliation was continued with the National Association of Retail Druggists.

Secretary Warren L. Bradt of the State Board of Pharmacy reported the activities of that organization. One license had been revoked and one pharmacist was suspended for one year, and another for six months. Of the 239 applicants for druggists' licenses, 161 had passed, and 78 failed; while of the 500 applicants examined for pharmacists' licenses, 386 had passed and 114 failed.

The report of the committee on legislation reviewed the legislative activities of New York, and also gave some consideration to national legislation. An anti-coupon law similar to that of Florida was favored.

The committee on Drug Market, composed of Dr. Joseph Weinstein, Thomas Latham and Dr. H. H. Rusby, presented an interesting report dealing with the conditions of the drug market during the past year and how prices had been boosted artificially, at times, with ruinous results. The subject of adulteration and substitution received considerable consideration.

The committee on State Service Pharmacy, which had in charge the classification of salaries, recommended the adoption by the Association of the following resolution:

Resolved, That the New York State Pharmaceutical Association recommends that the State standardize the salaries of pharmacists in State institutions on the following basis: An increase in the salary of all pharmacists of $100 a year until a maximum of $1200 is reached in institutions of less than 4000 patients and $1500 for institutions of over 4000 patients. This increase to extend over a period of three years until the maximum is reached.

The names of the nominees for the State Board of Pharmacy follow: John Hurley, Little Falls; Dr. Jos. Weinstein, New York; Dr. Jacob Diner, New York; Lewis Stokes, Syracuse; Arthur S. Wardle, Hudson; Dr. William C. Anderson, Brooklyn; Robert S. Lehman, New York, and Henry B. Smith, Brooklyn.

Dr. William Mansfield had charge of the papers presented at the convention, and quite a number of valuable papers were read at the meeting. Addresses were made by Professor Homer St. Clair Pace, on "Business Training for Pharmacy," and by Doctor Joseph Kahn on the "Organic Compounds of Arsenic."

The following officers were elected for the ensuing year: President, Elmer E. Chilson, Rochester; first vice-president, Richard A. Austin, Cairo; second vice-president, Dr. Jos. Weinstein, New York; third vice-president, Orrin O. Bigelow, Richfield Springs; secretary, Edward S. Dawson, Syracuse; treasurer, Frank Richardson, Cambridge; members of the executive committee, Charles N. Lehman, Tottenville, Herbert D. Wright, Syracuse, and Henry B. Smith, Brooklyn.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The registration bureau, conducted by the entertainment committee, showed the number attending the thirty-ninth annual meeting of the Pennsylvania Pharmaceutical Association at Reading, Pa., on June 20, 21 and 22, to be 298. Every one received a book of coupons, entitling the holder to participate in the many amusement features scheduled by the hard-working entertainment committee consisting of Charles Rehfuss, chairman; S. B. Davis and H. J. Hackett.

Discussion and action upon legislative issues dominated the business sessions of the Association. An itinerant venders' bill, in revised form, it was decided should be presented by the incoming legislative committee at the session next January of the Pennsylvania Legislature. The report of Chairman S. C. Henry of the legislative committee contained a recommendation that the Pennsylvania Drug Act be changed so as to harmonize entirely with the Ninth Revision of the United States Pharmacopœia and with the new National Formulary and the Shirley Act. This was approved by the Association, as well as the proposed amendments to the Pharmacy Act which will provide for the recognition and registration of those having experience in hospital pharmacies and who are otherwise qualified and can pass the State Board, and will compel hospitals where prescriptions are compounded to have a registered pharmacist in charge. The incoming committee will also endeavor to frame legislation, pertaining to the sale and possession of narcotic drugs, that will provide for the contingency created by the recent decision of the federal courts under which it is no longer considered a misdemeanor for persons other than those properly registered to have the restricted narcotic drugs in their possession.

The Stevens-Ashurst bill was endorsed; affiliation with the National Association of Retail Druggists continued; and honorary membership, upon the recommendation of retiring president, Theodore Campbell, conferred upon W. B. Day, of Chicago, Ill., general secretary of the American Pharmaceutical Association.

The election of officers resulted as follows: President, Adolph Schmidt, McKeesport; first vice-president, Melvin W. Bamford, Reading; second vice-president, W. H. Knoepfel, Scranton; secretary, R. P. Fischelis, Philadelphia; assistant secretary, Lewis H. Davis, Philadelphia; local secretary, B. W. Pritchard, Pittsburgh; treasurer, F. H. E. Gleim, Lebanon; member of the executive committee, David J. Reese, Philadelphia. Mr. Reese had been the efficient secretary of the Association since 1914, but press of other business made it impossible for him to accept a renomination this year.

The invitation of the Western Pennsylvania members to visit them next year was accepted and the Hotel Schenley, Pittsburgh, was chosen as the meeting place, June 19, 20 and 21, 1917.

The program of entertainment contributed greatly to the success of the meeting. On one day the visitors were the guests of the Reading Chamber of Commerce and the retail druggists of that city in a trolley tour and luncheon at the Tower, a lofty mountain resort overlooking the city. Wednesday evening, William H. Luden, the well-known confectionery manufacturer of Reading, was host to the convention at a banquet at the Hotel Berkshire. The handsome gold prize for the best paper presented at the 1915 session was awarded to Charles H. LaWall, of Philadelphia, while throughout the meeting, the Association maintained its enviable reputation for the number and excellence of the papers read.

The report of Secretary D. J. Reese of the parent organization showed that of the 162 new members elected during the year, 135 had been secured directly by the Travelling Men's Auxiliary. The salesmen gave an excellent entertainment after the banquet on Wednesday evening and proved as usual a powerful working arm of the parent organization. The Auxiliary elected the following officers: President, J. Q. Reinhart, Philadelphia; vice-president, W. H. Skivington, Philadelphia; treasurer, J. D. McFerren, Philadelphia; secretary, J. W. Garlick, Philadelphia.

BROOKLYN ALUMNI ELECT OFFICERS.

The following officers of the Brooklyn College of Pharmacy Alumni Association were elected at the annual meeting: President, Chas. V. Lewis; first vice-president, Dr. Louis F. Thumser; second vice-president, Dr. Harry L. Goldwag; secretary, Benjamin

Mullano; treasurer, Dr. William C. Anderson; registrar, A. R. Helfand; executive committee, Miss Lillian Mahlstadt, Harry A. Gordon, L. Leventhal, and Dr. Robert Henderson.

BUFFALO COLLEGE OF PHARMACY.

The commencement exercises of the Buffalo College of Pharmacy were held June 2.

The degree of master of pharmacy was conferred on one, and that of analytical chemist on eight candidates.

Fifty-two students received the degree of graduate in pharmacy.

After the commencement exercises a dinner was served to the analytical chemistry graduates at Hotel Statler. The dinner to the graduates in pharmacy was given on the night previous at the same hotel.

CINCINNATI COLLEGE OF PHARMACY.

The forty-fourth annual commencement of the Cincinnati College of Pharmacy was held June 1.

Four candidates were given the degree of pharmaceutical chemist, and thirty-five, that of bachelor of pharmacy.

Commencement exercises were followed by a banquet, at which Professor Harding presided as toastmaster.

COLUMBIA UNIVERSITY.

At the commencement exercises of Columbia University, held June 7, thirteen candidates who had successfully completed the University course of the New York College of Pharmacy received the degree of pharmaceutical chemist.

The Breitenbach prize and the Kappa Psi prize were both won by Jos. F. Paulonis, of New York.

FORDHAM UNIVERSITY—DEPARTMENT OF PHARMACY.

At the commencement exercises of Fordham University on June 15, thirty-two candidates received the degree of graduate in pharmacy; and honorary degree of doctor of letters was conferred on James J. Walsh, M.D., formerly dean of the colleges of medicine and pharmacy.

COLLEGE OF PHARMACY, UNIVERSITY OF IOWA.

The thirtieth annual commencement of the College of Pharmacy occurred on June 14th, together with the commencement of the seven other colleges of the University. The address was given by Professor Bliss Perry of Harvard University on "A Famous Speech to Scholars," the speech referred to being Emerson's "American Scholar." Two students were given the degree of pharmaceutical chemist and eighteen that of graduate in pharmacy.

The following prizes were awarded:

Nomination to membership in the American Pharmaceutical Association offered by Dean Teeters was awarded to William A. Konantz, of Quincy, Illinois. This was for highest rank in competitive examination in knowledge of organic drugs.

Nomination to membership in the American Pharmaceutical Association for general excellence in all branches, offered by Gus Scherling, of Sioux City, Iowa, awarded to Ray E. Everly, Canton, Ill.

Nomination to membership in Iowa Pharmaceutical Association, 7 offered by Professor Zada N. Cooper to senior attaining highest rank in pharmacy, was awarded to William A. Konantz, of Quincy, Illinois.

A subscription to *Journal of American Pharmaceutical Association* to junior attaining highest rank in practical pharmacy, offered by Professor R. A. Kuever, was awarded to Roscoe E. Stewart, of Spencer, Iowa.

William A. Moerschel, of Homestead, Iowa, was recommended for commission in Cadet Regiment, 1916–17.

OTHER A.PH.A. MEMBERSHIPS.

We endeavor to make mention of all memberships given in the American Pharmaceutical Association, in connection with reports of schools, associations, etc., but doubtless some are unintentionally omitted.

The San Francisco Branch A.Ph.A. donates a membership to a member of the graduating class of the San Francisco College of Pharmacy, who stands highest in theory and practice of pharmacy.

The Oklahoma School of Pharmacy gives a membership prize, known as the John Barbour senior prize, to the student making the

highest grade, and the Howard Storm Browne prize to the student receiving best grade in materia medica.

PHARMACY DEPARTMENT—COLLEGE OF JERSEY CITY.

The commencement exercises of the College of Jersey City were held at the Bergen Lyceum, on Thursday evening, June 15, 1916. The opening address was made by Hon. James E. Pope, president of the College; Dr. Gordon K. Dickinson, the eminent surgeon in New Jersey, delivered the address to the graduating classes and Hon. Joseph E. Bernstein, the treasurer of the College, spoke briefly.

In the Department of Pharmacy, David Tischler was awarded the gold medal and William P. Bohne received the silver medal.

UNIVERSITY OF MARYLAND, COLLEGE OF PHARMACY.

The Maryland College of Pharmacy conferred the degree of graduate in pharmacy on twenty-one candidates.

The graduation exercises were held at the Lyric. The address to the graduates was made by Governor Harrington, of Maryland, and the degrees were conferred by the provost of the University, the candidates being presented by Dean Charles Caspari, Jr.

The degree of doctor of laws was conferred on Dr. William Simon, and the diploma bore the signature, among others, of Professor H. Hynson, whose diploma as a graduate in pharmacy Doctor Simon had signed thirty-nine years before. Professor Hynson is now secretary of the Board of Regents of the University, and it is stated that next year he will limit his teaching to commercial pharmacy and lecturing on drug store practice.

COLLEGE OF PHARMACY OF THE UNIVERSITY OF MINNESOTA.

At the commencement exercises of the College of Pharmacy, University of Minnesota, two candidates were given the degree of master of science in pharmacy, one that of bachelor of pharmacy and twenty-seven the degree of graduate in pharmacy.

The commencement address on the subject, "Present-Day Humanism," was delivered by the Rev. Samuel McChord Crothers, D.D., Litt.D., minister of the First Unitarian Church, Cambridge, Mass. Unfortunately Dean F. J. Wulling could not take his usual part in the commencement exercises, having been called to Denver, Colorado, by the death of his youngest sister. In his absence Dr. E. L. Newcomb presented the candidates for graduation to the President of the University, who then conferred the respective degrees upon them.

UNIVERSITY OF MONTANA.

Dean Charles E. Mollet and students of the Department of Pharmacy, University of Montana, have experimented in drug-plant culture during the past year. The plants cultivated this year are calamus, chimaphila, convallaria, grindelia, hyoscyamus, juniper, phytolacca, podophyllum, prunus virginiana, salix, savin, stramonium, taraxacum and uva ursi.

Two memberships in the American Pharmaceutical Association were offered; one by Alex. F. Peterson, secretary of the local branch, A.Ph.A., to the freshman student showing the highest proficiency in manufacturing pharmacy, and was won by Thomas H. Bienz, of Kalispell; the other to the senior student making the highest general average, given by Dean Mollet and awarded to Benj. E. Lapeyre, Jr., of Great Falls.

NEW ORLEANS COLLEGE OF PHARMACY CONFERS DEGREE OF DOCTOR OF PHARMACY ON F. C. GODBOLD.

The New Orleans College of Pharmacy graduated twenty-seven students; of these, nine were from Cuba. A prize membership in the American Pharmaceutical Association was awarded by Dean Philip Asher to Frank G. Rieger, of Donaldsonville, La.

A degree of honor, that of doctor of pharmacy, was conferred on Fabius C. Godbold, charter member of the New Orleans College, and Honorary President of the American Pharmaceutical Association.

ALUMNI ASSOCIATION, NEW YORK COLLEGE OF PHARMACY, ELECTS OFFICERS.

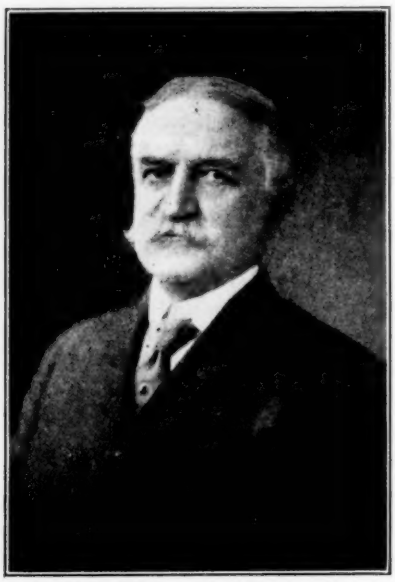
The Alumni Association of the College of Pharmacy of the City of New York has elected the following officers for the year 1916–17: Honorary president, T. F. Main;

president, J. A. Steffens; vice-presidents, M. H. Weil, E. Windt and V. M. Orefice; secretary, L. Roon; treasurer, F. A. Leslie; registrar, J. Hostmann; members of the executive board, C. W. Ballard, F. N. Pond and E. C. Steinach.

CHANGES IN FACULTY OF PHILADELPHIA COLLEGE OF PHARMACY.

Dr. Samuel P. Sadtler, for thirty-eight years active as professor of chemistry in the Philadelphia College of Pharmacy, has been made emeritus professor of that institution.

The activities of Professor Sadtler are well known in a general way to all scientific men, for as a chemist he is distinguished; however,



SAMUEL P. SADTLER

pharmacists know him, not only as a teacher but author of a number of chemical textbooks and as chemical editor of the United States Dispensatory; this work he will continue. One of his sons, S. S. Sadtler, is associated with his father.

Professor Sadtler, who was born at Pinegrove, Pa., 69 years ago, was educated at Easton high school, Pennsylvania College (Gettysburg), and the universities of Lehigh, Harvard, and Göttingen. He taught first in Pennsylvania College then in the University of Pennsylvania and since 1879 at the Philadelphia College of Pharmacy.

Prof. Freeman Stroup, who has been appointed acting professor of chemistry in the Philadelphia College of Pharmacy, has been assistant to Professor Sadtler since 1899. Before entering pharmacy, Professor Stroup was a school teacher. He graduated from the Philadelphia College of Pharmacy in 1896, thereafter giving further study to chemistry in the same institution, and in 1899 was nominated assistant to Professor Sadtler.

PITTSBURGH COLLEGE OF PHARMACY.

At the commencement exercises, held June 14th, the Pittsburgh College of Pharmacy graduated seventy-seven students with the degree of graduate in pharmacy, one as a pharmaceutical chemist, and eleven with certificates of proficiency. The prize-winning students were: Mrs. Muriel B. Holman, Beal scholarship and the pharmacognosy prize; A. M. Berkowitz, Saalbach pharmacy prize; Isadore Bluestone, Judd materia medica prize; B. F. Rodriguez, Saalbach pharmaceutical products prize; E. C. Reif, chemistry prize. C. S. Miller, director of physical education at the University of Pittsburgh, received the honorary degree of master of pharmacy.

QUEEN CITY COLLEGE OF PHARMACY.

The Queen City College of Pharmacy, Cincinnati, held commencement exercises June 28. Fifty-four students were given the degree of graduate in pharmacy.

GEORGE WASHINGTON UNIVERSITY —DEPARTMENT OF PHARMACY.

Fifteen graduates received the degree of doctor of pharmacy at the ninety-fifth annual commencement of the George Washington University, held June 7.

The candidates were presented by Dean Kalusowski, and the degrees were conferred by President Stockton, who also delivered the address to the graduates.

PHARMACY DEPARTMENT—UNIVERSITY OF WISCONSIN.

At the commencement exercises of the pharmacy department of the University of Wisconsin, eleven students were graduated in pharmacy.

A. G. DuMez, who graduated from the University of Wisconsin in 1907, and is now associate professor and director in the Course in Pharmacy at the University of the Philippines, will remain at the University of Wisconsin during the summer session in order to complete his work for the doctor's degree.

Dr. J. H. Beal, of Urbana, Illinois, recently delivered an interesting and instructive lecture to the students of the pharmacy department on "The Burdens of Progressive Legislation."

THE PHARMACIST AND THE LAW

REGISTRATION OF PATENT MEDICINES IN PORTO RICO.

The regulations applying to the registration of patent medicine became effective July 1, and require: That no person, firm, syndicate, corporation, proprietor or administrator of a drug store or pharmacy and no business engaged in manufacturing on the island of Porto Rico, devoted to the preparation of patent medicines designed for pharmacological uses, shall offer for sale such medicines, nor distribute them from house to house, nor give out free samples unless the medical formula for such preparation shall have been previously registered with the Service of Sanitation.

That the application for such registration shall state that the medicine has been prepared in accordance with the provisions of the Federal Food and Drugs Act of 1906, and also with regulation No. 28, governing such medicines. The other data to be filed at the same time shall include the name of the preparation, of the applicant, where the remedy is made, the form and container employed, the names in English and Spanish of all ingredients except those inactive or inert; the therapeutic effects claimed. The exact text of the advertising matter to be used and of the matter accompanying the preparation must also be given, together with the name of the island agent if the manufacturer is a non-resident of Porto Rico.

With the application must be submitted two samples of the medicine as sold, and copies of the advertising matter to be employed. The form of advertising and the make-up of the package shall not be changed without authorization of the Service of Sanitation.

The Service of Sanitation is instructed not to make known the formula nor the names of the ingredients employed.

All this data will be filed in a book of registration together with the official number given the preparation, and an analysis made by the director of the chemical laboratory of the service, who must give to the applicant as his guarantee a certified copy of the registry, together with a copy of the official analysis.

Manufacturers of such patent medicines are, however, forbidden to use any legend on the package which would infer that the Service of Sanitation either guarantees or recognizes the merits or the therapeutic action of the medicine so registered.

TIME OF REGISTRATION.

The original time for such registration was set at July 1, after which date the advertising and sale of non-registered medicines would be prohibited, but Director W. F. Lippitt, director of the health board, has since stated that "reasonable time" will be allowed for such registration, up to 60 days from July 1. Director Lippitt's original ruling as to registrations was, in part, as follows:

2. In order to give more time to merchants the "'Sanitary Service" will extend said period until the first day of July, 1916, on which date the corresponding solicitations of registration should be presented, and if not, said preparations will be prohibited in sale and advertising.

3. It should be understood, nevertheless, that July 1 is not the limit of time for the approval of such solicitations, nor for termination of the analysis or emission of definite information, only for the presentation of documents required for such ruling. For this reason it shall be clearly understood that petitions for registration of a patented article, does not imply its definite acceptation.

4. The interested parties may solicit copies, in English or Spanish, of said ruling.

5. Pharmacists should exact from the wholesaler some written manifestation that the patented article they are purchasing is registered in accordance with the law, as the presentation of such writing renders the retailer free from the responsibility in regard to fulfillment of this ruling.

REVISED NARCOTIC LAW TO BE TAXATION MEASURE?

There are grounds for the belief that when the Treasury officials take up the question of plans for strengthening the Harrison anti-narcotic law to meet the situation enforced by the decision of the United States Supreme Court they will move along the line of making the law more of a Federal taxing measure than it now is, rather than attempt to patch up the law by a mere change of verbiage in an effort to meet the objections which the high court raised to the statute.

It is recognized among the government attorneys and experts in charge of the subject that the decision of the Supreme Court turned very largely on the question of the inexactitude of the law, which it is well understood will not be permitted in a criminal statute. It is not believed that the law can be strengthened with any amendments having to do with the question whether it covers opium produced or imported into the country, and whether the persons sought to be prevented from having illegal possession of the inhibited drugs are "any other" persons or "all other" persons.

In other words, the Treasury officials will be inclined to favor the plan suggested in the last report of the Commissioner of Internal Revenue, with the approval of Secretary McAdoo, for taxing all original packages of these inhibited drugs and eliminating the stamp taxation only in cases where orders for these drugs are filled from stamped packages upon physicians' prescriptions or are given by the physician, or other exempted persons in the course of their practice.

It is the belief of the officials that if the taxing provisions, such as are employed in the oleomargarine law, for example, are applied to these narcotic drugs there would be no objection on the part of wholesalers and retailers who would deal in the stamped goods and that persons who dispense the drugs upon prescriptions or otherwise in legitimate practice would make such records of the dispensing of the drugs as would enable the officials to prevent the inhibited drugs falling into the hands of addicts in unlawful quantities.

While no intimations are given as to the time when the department will take up this subject, and there continue to be suggestions that the matter may not be pressed at the present session of Congress, it is believed that the officials will thoroughly map out a program and confer with senators and representatives as well as with the representatives of the drug trade thereon within a short time.

So far as can be learned the persons in the trade, including wholesalers, retailers and physicians, have up to this time indulged in no comments in correspondence with the department relative to the change in the conditions enforced by the Supreme Court decision.

—*Paint, Oil and Drug Reporter.*

A CHECK NOT ALWAYS A RECEIPT.

A depositor claimed that the bank had wrongfully charged his account with $900. The bank sent a check for 65 cents to him, with a letter stating that this was his balance in full with the bank and was in settlement of his account. The depositor accepted the check. The bank set up that the depositor had no further claim upon it. The court held otherwise and said:

"We can see no just ground upon which the acceptance of the 65 cents inclosed with the above letter and general statement of plaintiff's account at the bank could have constituted an accord and satisfaction of the disputed item of $900. That the plaintiff was disputing the correctness of the charge of $900 against him cannot be denied, because he had already filed his suit for this item. The 65 cents sent him was an amount in addition to this about which there was no controversy. It is inconceivable that the plaintiff intended to settle his claim for $900 in consideration of the payment of 65 cents of his own money. It is true the plaintiff retained the 65 cents mailed him; but he had a right to do this, as it was his own money, and there was no controversy with reference to this small balance.

"The attention of the plaintiff was not directed by the above letter to the controversy with reference to the $900 item. The $900 item was charged on the account; but it only signified that the bank still had him charged with the $900 item which he disputed. Not only must an offer be made in full settlement of a disputed claim, but it must be accepted as full settlement. There is nothing in the letter above quoted to call plaintiff's attention to the fact, if it were a fact, that the defendant bank was offering this 65 cents in money in full settlement of defendant's claim for $900." (Collins vs. Union and Farmers' Bank; 70 So. 581. Miss. Sup. Ct.)

THE PARK CASES SETTLED AFTER TWENTY YEARS IN COURT.

The Park suit against the National Wholesale Druggists' Association and a number of wholesale druggists named as co-defendants originated at a time when trade conditions were vastly different than now, and also laws and views of the judiciary.

The action brought by plaintiff charged conspiracy in restraint of trade and the most recent of the Park Company actions to reach the courts was what is commonly known as a tort case, alleging conspiracy on the part of several wholesale drug houses which are members of the National Wholesale Druggists' Association, especially directed against the Park Company, including in its specifications "black-listing," spying on that concern's operations and an effort to prevent that company from obtaining business.

This case was set for trial before Justice Clarence A. Shearn and a jury in the Supreme Court at New York for June 2, but was later transferred to a part of that court in which Justice Gavegan was sitting, and was scheduled for trial on June 5.

During this adjournment the compromise was effected by the lawyers for both sides, Norman B. Beecher, of Burlingham, Montgomery & Beecher, and Leo Everett, of Everett, Clarke & Benedict, as the attorney and associate counsel for the defendants, and former Judge Alton B. Parker and Arthur B. McCausland, representing the Park Company.

The other suits have likewise been settled, and the sum involved is, $125,000.

Those in position to know say that these suits might have been continued in court for twenty years longer and possibly then not be nearer a conclusion. The settlement is costly, but even at the price, everyone concerned is to be congratulated on the termination of this case with an interesting and expensive history.

ONE CENT DAMAGES IN CARDUI CASE.

The jury in the case of Chattanooga Medicine Company against the American Medical Association for libel, brought in a verdict of one cent damages in favor of plaintiff, June 22, after six days' consideration.

Damages were sought as a result of the publication in the *Journal of the American Medical Association*, describing the Wine of Cardui, manufactured and sold by plaintiffs, as a "booze, a tipple, a worthless fraud and a cheat."

It was stated in the press that the counsel for plaintiffs had said, "that the suit would probably never have been brought had not the accusation been made that the manufacturers of Wine of Cardui knowingly perpetuated a fraud and used the Methodist Church as a means to further their business."

An editorial comment on the verdict in the *Journal of the American Medical Association* of July 1, 1916, p. 41, concludes with these words: "Viewing all the facts in the case and remembering the heavy damages asked by the plaintiff, the medical profession may interpret the verdict thus: Technically guilty; morally justified! To the Association a moral triumph: to the 'patent medicine' interests a Pyrrhic victory."

WAR DEPARTMENT

List of changes of stations covering period ending June 30, 1916, in the cases of Sergeants First Class and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

Ivan N. Karlson, from Jefferson Barracks, to the U. S. Transport "Kilpatrick."

Jason D. Byers, from the Augusta Arsenal, to the Field Medical Supply Depot, Washington, D. C.

Samuel Marcus, from Fort Ward, to the Augusta Arsenal.

Chester L. Thomson, from Fort Bayard, to the Remount Depot, Fort Keogh.

William J. Freebourne, from the Remount Depot, Fort Keogh, to Fort Caswell.

Richard E. Humes, from the Walter Reed General Hospital, to the U. S. A. Transport "Sumner."

Harry L. Reiter, from Fort Levett, to the Southern Department, for assignment.

SERGEANTS.

Sam K. Leming, from Jefferson Barracks, to the Letterman General Hospital.

Charles K. Aikin, from the Southern Department, to Fort Barrancas.

Charles Brown, from Fort Logan H. Roots, to the Walter Reed General Hospital.

Ignatius B. Thomas, from Fort Monroe, to Jackson Barracks.

Ray L. Reed, from the Rock Island Arsenal, to the Southern Department for assignment to station.

John Haaies, from the Frankford Arsenal, to the Southern Department for assignment to station.

Elmer M. Peddrick, from Fort Adams, to the Southern Department for assignment.

Duncan M. McClure, from Fort Jay, to Madison Barracks.

Harry Cook, from the Washington Barracks, to the Southern Department for assignment to station.

Richard Ewinski, from Fort Logan, to the Southern Department for assignment.

Levi F. Grigsby, from Fort Logan, to the Southern Department for assignment.

Verle J. Fields, from Fort Leavenworth, to the Southern Department for assignment.

Matthew S. Matthews, from the U. S. Disciplinary Barracks, Leavenworth, to the Southern Department for assignment to station.

James W. Brown, from Fort Bayard, to the Southern Department for assignment.

Maxwell E. Hill, from Fort Bayard, to the Southern Department for assignment.

Corbett C. Phipps, from the Letterman General Hospital, to the Southern Department for assignment to station.

Orville T. Musser, from the Letterman General Hospital, to the Southern Department for assignment to station.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

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From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESS SINCE MAY 18, 1916.

HUDER, H. J.,
From 52 E. Washington St., Indianapolis, Ind.
To 102 Washington St., Indianapolis, Ind.

ANDERSON, A. E.,
From 1827 13th St., Moline, Ill.
To 711 16th St., Moline, Ill.

GLANCY, J. D.,
From 59 Gates Ave., Brooklyn, N. Y.
To Upton, Mass.

KOSSLER, H. S.,
From 206 S. Main St., Wabash Sta., Pittsburgh, Pa.
To 444 S. Main St., Pittsburgh, Pa.

DELGADO, ESTRELLA,
From San Miguel No. 1 Altos, Habana.
To Principe 19 Habana, Cuba.

CROCKETT, WM. G.,
From 113 W. 64th St., New York, N. Y.
To 116 W. 82d St., New York, N. Y.

SANDERS, H. B.,
From 2357 Kenilworth Ave., South Norwood, Ohio.
To 346 Probasco Ave., Clifton Heights, Cincinnati, Ohio.

SHAPIRO, H. A.,
From 1 Durham St., Boston, Mass.
To 43 St. Stephen St., Boston, Mass.

DAVIS, E. M.,
From 309 Lion St., Dunkirk, N. Y.
To 317 Lion St., Dunkirk, N. Y.

BLAKELEY, G. C.,
From 3132 Second St., The Dalles, Ore.
To 3131 Second St., The Dalles, Ore.

LAKAMP, WM.,
From 3623 Montgomery Rd., Cincinnati, Ohio.
To 1201 Vine St., Cincinnati, Ohio.

SEAMAN, F. A.,
From 229 Rector St., Perth Amboy, N. J.
To 406 S. Palmetto Ave., Daytona, Fla.

WILLIAMS, G. G.,
From 99 North St., Boston, Mass.
To 43 Stelson St., Brookline, Mass.

GASEN, HARRY,
From Chicago, Ill.
To Care of Litchfield Pharmacy, Litchfield, Ill.

STOOKEY, H. F.,
From Kirskville, Mo.
To Colchester, Ill.

ARNDT, W. H.,
From Brooklyn, N. Y.
To Webster, N. Y.

KAETZEL, C. P.,
From Elwood City, Pa.
To Harmony, Pa.

SIEGEL, H. J.,
From 51 J Street, Sacramento, Cal.
To Box 181 R. D. 4, Sacramento, Cal.

TROUPIN, E. S.,
From Residence unknown.
To 124 Pacific St., Stamford, Conn.

BEACH, D. C.,
From 635 Myrtle Ave., Albany, N. Y.
To 175 Jay St., Albany, N. Y.

DIETHELM, MARTIN,
From 701 Madison Ave., Toledo, Ohio.
To 702 Madison Ave., Toledo, Ohio.

MASON, EARL H.,
From 99 Chapin Ave., Providence, R. I.
To 119 Ontario St., Providence, R. I.

RYAN, A. S.,
From 1001 16th St., Denver, Colo.
To Box 1140, Denver, Colo.

SCHOLTZ, WM. O.,
From 1001 16th St., Denver, Colo.
To Box 1140, Denver, Colo.

BRUDER, OTTO E.,
From 3525 Greenwood Ave., Chicago, Ill.
To 4252 N. Lincoln St., Chicago, Ill.

REMIREZ, FRANCISCO,
From Delicias 88 entre Millagros y Catalina, Jesus del Monte, Habana, Cuba.
To Jesus del Monte 476, Habana, Cuba.

WOLF, JAMES C.,
From James C. Wolf, 2207 E. Pratt St., Baltimore, Md.
To J. Carlton Wolf, 401 S. Broadway, Baltimore, Md.

DECEASED SINCE MAY 18, 1916.

FRANZONI, JOS. D.,
Washington, D. C.

HAY, CHAS. K.,
Du Bois, Pa.

PUBLICATIONS RECEIVED

Proceedings of the Fifth Annual Meeting of National Association of Manufacturers of Medicinal Products.

There is much interesting matter in this volume of 270 pages which has just been issued. The reports of the officers and committees are comprehensive and contain valuable information on legislation, the industries of the drug trade, etc. The address by Dr. J. H. Beal as representative of the American Pharmaceutical Association on "the Community of Interest of the Drug Trades in Food and Drug Legislation" was printed in the JOURNAL for February, 1916, p. 175. A brief by him respecting Treasury Decision 2213 analyzes section 6 of the Harrison law, and the reading to arrive at a correct and fair definition of "preparations," "remedies" and "prescription" exhibits the usual care and thoroughness of the author. Likewise the brief on the Sherley Amendment and Treasury Decision 2194, by Charles M. Woodruff, is a complete and clear exposition. Among the papers of general interest is that on Constructive Government, by Dr. A. R. L. Dohme, and so extended comment might be made on other subjects, but this brief reference is for expressing, that the volume is deserving of much more consideration than of simply acknowledging its receipt.

JOURNAL ANNOUNCEMENTS.

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